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Educational News and Editorial Comment

THE UNIVERSITY OF CHICAGO DINNER

The University of Chicago Dinner held annually in connection with the meeting of the Department of Superintendence of the National Education Association will occur at the Willard Hotel in Washington, D.C., at six o'clock on Wednesday evening, February 24, 1932. Robert M. Hutchins, President of the University of Chicago; Ray L. Wilbur, United States Secretary of the Interior; and Charles H. Judd, Dean of the School of Education, University of Chicago, will speak.

Tickets, at the rate of $3.00 each, may be secured from William S. Gray, School of Education, University of Chicago.

STATE CONSTITUTIONS AND SCHOOL ADMINISTRATION

The Office of Education has published a leaflet prepared by Edwin S. Lide under the title *Constitutional Basis of Public School Education*. The accompanying tables taken from the leaflet reveal in a striking way the tendency of the western and southern states to write into their constitutions detailed provisions regarding education.

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The fact is that many of our commonwealths have pursued a mistaken policy by writing into their constitutions provisions of a too detailed nature. It is extremely unwise for the makers of constitu-

SUMMARIZATION SHOWING TRENDS IN NUMBER OF PROVISIONS IN EARLY AND LATE CONSTITUTIONS

Period	Number of States Admitted during Period	Average Number of Provisions	Period	Number of States Admitted during Period	Average Number of Provisions
Previous to 1800....	14	0.6	1861–1880.....	4	9.5
1801–1920*.....	9	1.7	1881–1900.....	7	14.0
1821–1840.....	3	3.0	1900 to date.....	3	17.7
1841–1860.....	8	6.3			

*Connecticut is included in this period, since the first constitution of this state is dated 1818.

SUMMARIZATION SHOWING INFLUENCE OF GEOGRAPHICAL LOCATION ON NUMBER OF PROVISIONS

Area and States Included	Average Number of Provisions
Eastern: Connecticut, Delaware, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, West Virginia	3.5
Southern: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Texas, Virginia.....	9.3
Middle Western: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, Ohio, Oklahoma, Wisconsin.....	9.8
Western: Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, Wyoming..	14.6

tions to tie up as permanent and fundamental those principles and institutions which in their very nature are subject to change. As a result of the pursuit of such a policy, many state constitutions today include provisions relating to education which make it extremely difficult, if not impossible, to establish the types of administrative

organization which seem to be dictated by experience and by the principles of administration. To be more specific, we may point to the organization of state departments of education. Under the constitutions of twenty-nine states, the chief state school official must be elected by popular vote, and in four states he must be appointed in a designated way. In ten states the term of office of this official is a two-year term. Twenty-five states make constitutional provision for the compensation of the state superintendent of public instruction, and seven constitutions close the door completely against legislative intervention. In four states the constitution limits the superintendent's salary to two thousand dollars or less, and there is no way to increase his salary except by constitutional amendment. Frequently, too, the duties of this office are so minutely described in the constitution that it is impossible to change the essential character of the office by legislative enactment.

In a number of states the same general situation exists with respect to the state board of education. Eighteen states make constitutional provision for a state board of education, and of these only three leave the composition of the board to the discretion of the legislature. In those states which provide in the constitution for a state board, the general practice is to prescribe an ex officio board. Moreover, duties of the state board are often defined in such a way as to make it impossible to redefine the relation of the board to the state superintendent of public instruction. There can be little doubt that one of the fundamental problems which need to be attacked by students of public administration is the problem of state school administration. Attention has been given to the problems of local administration to the neglect of the problems of state organization and state policy. No matter what the findings of students of political science or school administration may be, in many of the states no fundamental reorganization can take place until constitutional changes have been brought about.

What is true of state administration is, to a lesser extent, true of county administration. One-third of the states provide in their constitutions for the county superintendent of schools. The constitutions of ten states provide for popular election. Here again reorganization is made exceedingly difficult. Other illustrations might be

given of the confusion of the permanent and fundamental with that which is inherently changeable and flexible. In a number of states the constitution stipulates the basis of the distribution of the income of the permanent school funds, and in most instances the basis of distribution is child population, a basis which in most instances has been found to be unsatisfactory. In some states the taxing power of the legislature is so restricted that it is impossible to shift the tax burden from real estate to other sources of revenue without changing the fundamental law. In at least one state the state superintendent cannot succeed himself after a four-year term and no state official except the governor may receive a salary in excess of five thousand dollars.

There are undoubtedly certain fundamental principles and institutions which should be given permanency and should be protected against quick and ready change. The separation of church and state in matters of education is one of these. Prohibition of local and special legislation may be regarded as desirable. Much can be said in defense of constitutional tax and debt limits. Nevertheless, the fact remains that during the course of the past fifty or seventy-five years the constitutions of many of the southern and western states have been gathering numerous details of purely statutory character which should be pruned away.

SOCIAL PLANNING AND THE FOUNDATIONS

The events of the past two years have revealed in a striking way the essential unity of the social structure. It is now clear that modern industrial society is much more highly integrated than had been supposed. The necessity of a type of social planning which takes into consideration the whole range of human interests and institutions is equally clear.

During the past quarter of a century one of the most significant influences in American society has been the work of the great foundations. They have promoted a great number and a great variety of specific activities and, in doing so, have had in mind more or less clearly, no doubt, the social consequences of their programs. There is evidence, however, that the foundations are becoming even more sensitive to the necessity for broad social planning. In this connection it seems appropriate to quote at some length a statement ap-

pearing in the current annual review of the work of the Julius Rosenwald Fund.

Attention is being given as never before to careful and comprehensive plans for social betterment and economic adjustment. The spectacular attempt of the Russian government to make a five-year plan, and to live up to it, has attracted world-wide attention and focused thinking upon the desirability of broad plans. The present depression, however distressing in other aspects, has had the beneficent effect of compelling thoughtful study of large problems.

Philanthropy, as well as government, has come slowly from the handling of miscellaneous items to the social plan. A thousand years ago charity used to express itself chiefly by the indiscriminate giving of alms. Slowly attention shifted to attempts to cure existing ills—the healing of the sick and the alleviation of social conditions. In that middle era hospitals and medical charity and settlement houses and family-aid societies were the fashion in philanthropy. Now the emphasis is being placed increasingly on prevention and on positive planning for future betterment.

In the realm of bodily sickness, for instance, first came alms, then medical relief, and now positive programs for the prevention of the great contagions and for public health. In education, the steps were from private teaching and "charity" schools to the present comprehensive public-school system, under which the state recognizes as a public responsibility the education of all its citizens.

Even though their programs are increasingly planful, the foundations have limited themselves to definite and restricted aspects of social problems: the control of specific diseases, the promotion of colleges or medical schools, the building of negro schools, the development of the social sciences or the fine arts. Formerly governments also were restricted in their activities. Their functions were largely the preservation of life and order through the police and the defense of the governmental unit from external attack. Little by little, governments have added to these primitive functions. They have taken over the education of the young, the protection of health (as well as life), the care of the dependent (and in some instances the aged), and even the regulation—and in certain instances, the subsidizing or operation—of business enterprises.

There are self-evident advantages in restricted programs. By isolating a single factor in the social order, it is easy to concentrate forces and accomplish results. But civilization has now become so complex and the various factors in it so interdependent that it is impossible to affect any single aspect of modern life without influencing many others. It is impossible, for example, in education to concentrate exclusively upon a single department or grade, for the whole educational process is recognized as a single stream. Science-teaching in universities is futile unless there has been proper education at lower levels; secondary schools build upon elementary instruction and influence what can be done in college. Furthermore, education, even broadly considered, is only one of the forces of society. It influences other forces and is in turn influenced by them.

Education easily leads to a disruption of the current social and economic system. Schools take farmers' and mechanics' children and turn them out intellectuals wearing white collars and unable to get satisfaction from drudgery which had meaning for their parents. The retaining of young people in schools until they are sixteen or eighteen or twenty years old creates a very different social order from that in which it was customary for all members of the family, including young children, to help in the family support. Often, too, students in college come into contact with new ideas, revolutionary to the thinking of their parents.

To stimulate any single activity means not only the promotion of that, but also the deflection of attention and of resources from other activities that may be of equal value. As government funds go increasingly into public health, it means just that much more transferred by taxes from private individuals to public uses or else just that much less for schools and courts and public works. On the other hand, expenditures for health or roads or schools may create new wealth for many individuals and for the community as a whole.

This complex, interdependent modern system requires concerted attack or at least unified thinking. The time has passed when either governmental or private agencies can wisely restrict their attention to single factors. Individual organizations may assume specific tasks and concentrate exclusively upon these, but someone must be seeing the situation as a whole and making sure that essential elements are not being left out of account and that no aspect is being too greatly overemphasized. This is a large order. It is impossible of complete attainment within the limits of human intelligence. No man or group of men can have the all-seeing eye. But the fact that we cannot achieve perfection is no excuse for not doing what we can.

Probably the most important thing is to realize this interdependence and to work gradually toward some approach to concerted planning. There are such great dangers in the attempt to regulate everything that we will certainly do well to move slowly and with great caution. The evils of bureaucracy are very real. But a more favorable attitude toward comprehensive social planning is one of the signs of modern times.

A concerted plan for any given community must be made by representatives of the community as a whole, not by a specialized group. Foundations might serve by helping to formulate problems involved in social planning. But philanthropic organizations realize that they are only a small part of the total social forces and so prefer to confine themselves to limited tasks. Individual foundations can probably serve best by making investigations, experiments, and demonstrations, keeping in mind the relation of these special interests to other social needs.

TEACHERS' RATINGS IN NEW YORK CITY

In a recent report on teachers' ratings the Committee on Organization and Administration of the Teachers' Council of New York City makes the following recommendations.

1. That the Board of Superintendents make a study of the question of who should be rated. (Should not teachers of stipulated minimum experience and success in teaching be exempt from the regular rating? If, by inspection, their work is ever found deteriorating, let rating be resumed. While not exactly parallel, such exemption would resemble that now in vogue relative to teachers receiving the maximum salary in a schedule.)

2. That ratings by principals be given annually instead of semiannually.

3. That a form be devised which will be comprehensive enough to serve for all purposes of rating—for the regular classroom work, for approval of license, for approval of salary, for use by the Board of Examiners when teachers are candidates for promotion. The present variety in forms permits (to the injustice of the teacher) a satisfactory rating on one form and an unsatisfactory rating on another form. This is not only unjust but also discouraging.

4. That the Board of Superintendents treat the question of teachers' ratings by a plan similar to that used in revising the course of study. There should be a committee which would have on it representatives of every grade of teacher and supervisor as well as a member of the Board of Examiners. To this committee every member of the educational system should be invited to send suggestions. Teachers should be advised to send their suggestions directly to the committee. These suggestions should not be barred or edited by supervisors. This would give an opportunity to competent though modest teachers to contribute ideas worth while.

5. That we recognize the fact that one of the most essential features of a rating system is that the teachers be convinced of its fairness. If the pupils are to progress, they must be guided not only by competent teachers but by happy teachers. Nothing tends to depress a teacher more than the thought that her rating does not reflect the good work she knows she is doing, not only for the child's intellect and his physical welfare, but also for his character.

6. There should be a mutual feeling between the supervisor who rates and the teacher who is rated. The supervisor should furnish the teacher with a printed form containing the items on which he is to rate her. He should invite her to inform him of the success (or difficulty) she has had in these points. As the purpose of rating is primarily to secure better teaching, the teacher should not be penalized for stating difficulties. On the contrary, she should be commended for crystallizing the difficulty and be assisted by the supervisor in overcoming it.

7. That in our effort to secure objectivity in rating, we must remember that our best will always be an approximation. It is practically impossible to make our standards absolute. (What is the absolute standard for loyalty, for co-operation, for character-building, for personality? Because of the many imponderables and intangibles involved, rating is not an absolute science like mathematics.)

8. That each year a member of the Board of Examiners be released from his regular duties and assigned to field work in the schools in order to get the view-

point of the supervisor and of the teacher, to the end that the examiner will help formulate a satisfactory system of ratings.

9. Avoid discouraging an earnest teacher. Instead of the item "specific weakness" in column 6, it would be more human to substitute "point to stress."

10. The supervisor who rates should inspire and foster self-criticism on the part of the teacher. This is one way to cause self-rating to function.

11. Whenever the supervisor files with his superiors a rating or other report on a teacher, he should immediately furnish the teacher with a written copy thereof. The right of appeal should always exist.

The report was prepared by Edward J. McNally, chairman of the committee, Helen M. Adams, Catherine Evers, Frank G. Ingalls, Margaret Johnston, John F. McNeill, and Henry J. Vaughan.

SCHOOL ATTENDANCE AT THE UPPER AGE LEVELS

A recent statement made in *School Life* by Maris M. Proffitt, educational consultant and specialist in guidance and industrial education at the United States Office of Education, contains some significant information with respect to the increase of school attendance of persons sixteen and seventeen years of age. On the basis of the 1930 census returns, the percentage of sixteen- and seventeen-year-old boys and girls attending school increased from 42.9 per cent in 1920 to 57.3 per cent in 1930. The greatest increase in attendance has been in the urban centers. In 1920, for example, 39.2 per cent of the urban population sixteen and seventeen years of age attended school; in 1930, 60.5 per cent of this age group were in school. The corresponding percentage of the rural population attending school in 1920 was 46.1; in 1930, it was 53.9. It is pointed out that "if the 1930 ratio per cent of school attendance to population for persons sixteen and seventeen years of age had remained the same as for 1920, 671,491 young people now attending school would be out of school and would be potential competitors with the adult group for employment."

An analysis of the data for the several states reveals that increase of school attendance of the age group under consideration has been characteristic of all sections of the country. In only two states, North Carolina and South Carolina, was there a decrease in attendance, and in each of these states the decrease was very slight. In 1930 in only twelve states—Connecticut, Georgia, Kentucky,

Louisiana, Maryland, New Jersey, North Carolina, Pennsylvania, Rhode Island, South Carolina, Virginia, and West Virginia—was the percentage of attendance less than 50; in 1920 the percentage of attendance was less than 50 in as many as thirty states.

Mr. Proffitt enumerates the following factors as among those responsible for the increased attendance.

1. The increase in the amount and character of vocational training offered in the public schools. For example, in the day vocational-industrial schools of Buffalo there were enrolled in September, 1930, a total of 2,365 students, of whom 932, or 39.4 per cent, were sixteen and seventeen years of age. While no comparable enrolment figures are available for 1920, the enrolment for that year would not exceed a small fraction of the 1930 enrolment. In 1930 there were in the United States, 981,649 pupils enrolled in all types of federally aided vocational classes. For classes in 1920 this enrolment amounted to only 265,058.

2. The age for compulsory school attendance has been increasing, and the attendance laws have been better enforced.

3. The age at which youth is accepted into employment is increasing. There are a number of factors operating to bring this about, two of which are the increasing need for technically trained and skilled workers and the increasing use of power machinery which tends to eliminate unskilled labor.

4. There is a growing recognition by students, parents, and employers of the practical value of the educational training offered in the upper years of the public-school curriculum.

THE CURRICULUM FOR POSTPRIMARY PUPILS IN SCOTLAND

One of the significant recent changes in education both in this country and abroad is the tendency to enrich the curriculum for pupils in the upper grades of the elementary school. In this country the introduction of new and advanced subjects into the seventh and eighth grades is rapidly detaching these grades from the elementary school and in reality attaching them to the secondary school. The seventh and eighth grades are becoming integral parts of our system of secondary education. A somewhat similar movement is taking place in England, although it has not developed so far as in this country. It is obvious that the English people have become aware of the fact that children who complete the work of a rudimentary elementary school at the age of fourteen are ill prepared to make their way in a complex industrial society. Moreover, there is a growing awareness of the fact that English society demands differentiated forms of secondary education, that it is not enough to

train only an intellectual élite. Consequently, an effort is being made to establish a system of postprimary education, or junior secondary education, which will be free and compulsory for all children between the ages of eleven and fifteen. Such a plan meets the general approval of all parties in England, but because of economic and religious difficulties it has not been enacted into law. Nevertheless, a number of local authorities are proceeding with the establishment of this new type of school.

A recent investigation of the curriculums for pupils of twelve to fifteen years of age made by the Scottish Council for Research in Education makes it evident that the problems of curriculum reconstruction at the upper-grade level are being vigorously attacked in Scotland. It will be recalled that the primary school in Scotland comprises an infant department for children five to seven years old, a junior division for children seven to nine years old, and a senior division for pupils nine to twelve years of age. At the age of twelve the pupils take a qualifying examination, and many pass directly into the secondary school or into the advanced division of the primary school. With respect to the curriculum for this latter group of pupils, the council makes certain significant recommendations. It suggests the following "core" subjects: English, history, geography, mathematics, physical and biological sciences, music, art, and physical education. The optional subjects which it recommends are domestic arts and crafts, technical subjects, commercial subjects, rural subjects, and languages. In a recent issue the London *Times Educational Supplement* comments as follows on that part of the report which deals with the nature of the content of the various subjects.

> The report on English is easily the longest; it makes a primary division of the subject into composition and reading, gives abundance of illustrative material, explanation of teaching points, and suggested reading and composition matter. It also supplies appendices on punctuation, etymology, grammar, speech training, and silent reading. The aim of history should be to give boys and girls a "clear, if elementary, idea of the present as the 'growing point' of the past"; while geography, "founded on principles of interdependence and unity," reveals the "interaction between man and his environment." In mathematics, arithmetic, algebra, geometry, and trigonometry are all given consideration, though the demands are slight in each case, arithmetic in particular being carried as regards content little beyond the requirements of the English primary

school. "We are definitely of the opinion," say the science panel, "that biology should form part of the science instruction in all schools," and their syllabus, which includes chemistry and physics throughout the three years, with a term each of elementary geology and astronomy in the first year, gives a seven-terms course in this subject. "Teaching of rhythm by bodily movements associated at all points with the notation of this rhythm should be regarded as an essential part of adequate elementary musical training," say the musicians, who declare for segregation of sexes between twelve and fifteen and are whole-heartedly in favor of boys continuing to sing during the period of voice change. The art and crafts panel warns us that "to assume that indifferent mental powers are sufficient for practical education is a grievous mistake . . . . the standard of attainment will be governed by the intellectual capacity"; but finds that handwork "possesses a peculiar value," for the duller child, who understands "the concrete form of its representation," is usefully disciplined by its demand for accuracy, and by discovering something he can accomplish regains self-respect. They note the significance of the change of title from "drawing" to "art," and give notes on woodwork and metal-work, needlecraft, including embroidery, leatherwork, bookbinding, printing, block printing, stenciling, pottery, and weaving. The report on physical education shows largeness of vision:

"If it were not for the persistence in some quarters of the influence of the old and now deservedly discarded distinction between mind and body, the term 'physical' education would be abandoned. . . . . Physical education is, after all, an aspect of the larger problem of education in general, and any system of education which divorces the physical from the intellectual or moral side of human life is defective and unsound."

After that the plea that "the time has come when games and athletics in schools should be organized and conducted as an educational project and not as an 'extra' for a representative team" comes quite naturally and deserves full consideration. There is a useful section on remedial gymnastics for physically subnormal children.

Of the reports on the optional subjects that on rural subjects is easily the most interesting, including as it does sections on horticulture, silviculture or the growing of woods, dairying, poultry science, bee-keeping, and navigation. We are reminded that "there are certain parishes in Scotland where silviculture and forestry are, or in future will be, the basic industries of the community." Technical subjects include handwork, "that part of the technical course which is carried out mainly at specially equipped benches," technical drawing, and mechanics. The commercial panel would keep "bookkeeping the main center of attention and effort throughout the three years," and the languages panel say that "no pupil should be deprived of the opportunity of studying one foreign language unless by proved incapacity to profit by it," and suggest various ways of combing to prove that incapacity. The languages dealt with are French, German, and Spanish. Under domestic arts and crafts, cookery, laundry, housewifery, and needlecraft are dealt with.

A COMPREHENSIVE GUIDANCE PROGRAM

Under the leadership of Professor Maurice J. Neuberg, of Wittenberg College, and D. H. Sellers, county superintendent of schools, the school leaders of Miami County, Ohio, have undertaken a comprehensive guidance program suitable to the needs of all pupils in the county in Grades VII–XII, inclusive. Superintendent Sellers describes the development and purposes of the program in the following words.

In October [1930] every principal and superintendent in the county voted to take an extension course in guidance at their own expense under the direction of Professor M. J. Neuberg, of Wittenberg College.

This was an outgrowth of a movement started by the State Department of Education. A meeting was called in Columbus, which was attended by representatives of every type of school or college in the state. At this meeting the need for more efficient guidance of youth was stressed, and there was unanimous agreement that a definite program should be formulated by the State Department of Education.

Accordingly, the department adopted the general plan of guidance presented by Professors M. J. Neuberg and H. A. Toops, which was published under the title "Introduction to Guidance" and distributed over the state.

The school leaders of Miami County, being interested in guidance, have undertaken a comprehensive guidance program under the following heads: (1) home guidance, (2) educational guidance, (3) social-civic guidance, (4) moral-ethical guidance, (5) physical and recreational guidance, and (6) vocational guidance.

Home guidance seeks to make boys and girls better members of the family circle and also aims to help them prepare to be home-builders in the future. This means more than home economics, as we have had it in the past. It means a consideration of family relationships as well. It applies to boys as well as girls.

Educational guidance seeks to make the work of schools and colleges in the child's development more effective. In this field we take up what is thought of as the ordinary work of schools. The aim is to determine what the essentials of learning are and to seek the most effective ways of carrying out these essentials.

Social-civic guidance may be thought of as dealing with citizenship training and also deals with the wise use of leisure time. As labor-saving machinery frees man from drudgery and he has more leisure time, this becomes a more and more important field of guidance.

Moral-ethical guidance has to do with the development of character and spiritual life. In former years the church was expected to look after this part of guidance largely. But the fact that the church is reaching only about one-half of our population (a recent survey in Miami County showed it to be 49 per cent), means that the school must take a hand if anything like all of our boys and girls are to be reached in moral guidance.

Physical and recreational guidance has to do with physical education or the development of a strong, healthy body in which an active mind and a well-developed moral nature may properly function. Recreational guidance has to do with the proper use of leisure time.

Vocational guidance undertakes to help the high-school pupil in one of the most important decisions of life, that of selecting an occupation, an occupation in which he will become a useful and happy citizen. The fact that our country is no longer merely an agricultural land, in fact not over one-third of the population is now engaged in earth occupations as compared with 95 per cent or more in Washington's time—coupled with the fact that our industrial life has become very complex—makes it necessary for the schools to take a hand in helping boys and girls solve the important problem of choosing their life-work.

Of course, the school in the past has done something along all the above lines, but what we are seeking to do now is to substitute the idea of guidance for teaching—to place the emphasis on guiding the child in self-development rather than on the teaching process—in short, to place the pupil rather than the teacher in the foreground.

After having discussed the general principles of guidance during the first semester, the school administrators organized themselves into six committees representing the six phases of guidance, each committee consisting of representatives of two or three schools which put into practice one particular phase of guidance. During the second semester these committees worked out a tentative program based on their experience and further study, suitable for all the schools of Miami County.

This outline is therefore presented in order that all the schools in the county, during the school year of 1931–32, may put into practice, in Grades VII–XII, inclusive, all the phases of guidance as herein outlined, making such modifications as local conditions may warrant.

Throughout next year the representatives of all the schools will continue their meetings to check up on the progress of our work and make such modifications as seem necessary with the hope that by the end of the school year 1931–32, we may complete the best guidance program possible.

The program adopted for the year 1931–32 is published under the title *Tentative Outline for a Guidance Program*. For each type of guidance included in the program, such as home guidance, educational guidance, and the like, specific aims are stated, and an outline for a course in each grade or a proposed plan of procedure is included. The bulletin is concluded by a rather extensive bibliography on the various phases of guidance. The pamphlet should be of interest not only to the school people of Miami County but to all who are concerned with developing effective guidance programs.

USE OF THE SCHOOL PLANT BY ADULTS IN NEW YORK

The *New York Sun* carries the following account of the use of school buildings in New York City for leisure-time pursuits.

Over five and a half millions is the record of attendance at leisure-time events in the schools of New York City, as revealed in an inquiry just completed by the Russell Sage Foundation. This figure does not include formal evening classes but chiefly recreational and club activities largely patronized by adults.

That "the little red school house" seems likely to be outstripped as a community center by the schools of a crowded city, which is usually regarded as a center only for commercialized amusements, is one of the striking observations of this report.

Clarence Arthur Perry, who conducted the survey for the foundation, describes schools so used as "in reality indoor playgrounds with the difference that the patrons are young people and adults rather than children."

As examples of the ever varied groups which take advantage of school facilities in the congested areas of New York he cites Boy Scouts, Camp Fire Girls, an oratorio society, an upholsterers' union, an Elks band, a Greek and American Progressive Society, a Folk Dance Society, a People's Chorus, a Polish Educational Council, a bridge club, a training school for nurses, a People's Institute. . . . .

The public schools of New York used for community purposes are of three kinds—the official community centers, which are administered by a regular staff of trained workers consisting sometimes of a principal, three teachers of health education, one librarian, and one club director; unofficial centers, being schools used by outside organizations conducting their own programs under permits covering a series of regularly recurring rates; and other schools available for the special occasions of local clubs and associations. Aside from the regular programs of the official centers it is reported that the schools were hosts on no less than 30,395 occasions of a social nature in the single year under study.

Most of the more recent school buildings in New York are constructed with such community service directly in mind. They include gymnasiums, a swimming pool, a library, rooms for club meetings, an auditorium for plays and exhibitions, and where ground is unusually restricted a play roof. A single school, the Washington Irving High School, was the scene of 1,086 outside activities in a recent year.

In concluding this report, Mr. Perry states:

"It is impossible to estimate the total value to society of the occasions we have discussed. It is safe to say, however, that these group activities are mediums by which not only our folkways are being gradually changed and molded but by which also our institutions and laws are gradually evolving. Thus, in its encouragement of associational life, the schools are performing, in addition to their principal educational function, a social service of fundamental importance."

THE HEALTH OF THE SCHOOL CHILD IN ENGLAND

The London *Times Educational Supplement* carries the following comment on the recently issued annual report on medical service to school children.

If arguments were needed to confirm the worth of wise spending and the avoidance of ill-considered economies, they are to be found within the pages of Sir George Newman's illuminating report on "The Health of the School Child," issued this week.

Since the establishment of the school medical services in 1907, "hundreds of thousands of defective or ailing children have been effectually treated and their physical disabilities remedied." As Sir George sums up the position, repair work has been undertaken on a vast scale, and although, as he reminds us, there is need still to deal with a steady stream of disease and disability, the normal child shows increase in height and weight, while some of the worst conditions, which were a source of grave difficulty, are gradually disappearing. Cleanliness is improving, tuberculosis and rickets are declining, and defects of vision, skin disease, enlarged tonsils and adenoids are less severe than a quarter of a century ago.

It is clear, however, from a study of Sir George Newman's survey, that vigilance requires to be maintained as carefully as ever and that while there has been advance in many areas, in others progress has been uncertain and halting. It is clear, too, that concentration of effort on obvious defects has left unexplored general conditions leading to ill health. More thorough action in this direction would not mean necessarily an increase in costs, but it would mean an increase in the value of the school medical services and the development of a healthier generation. "Local education authorities," says Sir George Newman, "are fully informed by their school medical officers in regard to the numbers of children in need of treatment for specific defects and ailments, but of the general state of health of their school children there is usually but little indication in the school medical officer's report." In fact, there seems a tendency to pass as healthy those whose vision and hearing are normal and who are not suffering noticeably from any acute illness or grave constitutional condition. "Yet," says Sir George, "many of these may be far more in need of medical care and supervision in the widest sense than the majority of those noted for some physical defect." . . . .

The impression gained from the report is that while a very large amount of work is being done by local education authorities, there are many gaps still unfilled. The figures of defects treated are imposing, 922,880 cases of minor ailments, 242,294 cases of defective vision, 109,738 children operated on for enlarged tonsils and adenoids, and 14,573,155 examinations by nurses for uncleanliness and verminous conditions. But these statistics must be reviewed in the light of other facts. For instance, much of the ill health of children entering school is preventable. While, as Sir George Newman points out, the average

mother realizes the need for skilled advice in the care of infancy, she considers herself quite competent to diagnose and treat the ailments of the "toddler stage." One of the best means to secure the early detection and treatment of disease is through the nursery school, but out of 2,000,000 children between two and five only about 3,000 are in nursery schools. Of course, only a proportion of these children require the care and supervision of these institutions, but some such provision is essential in areas where bad housing conditions still exist. "The babies are all right when they are born," maternity and child-welfare workers tell us, "and it is sad to see the deterioration which comes from living in courts in which there is little sunlight or fresh air." . . . .

One of the most encouraging developments during the last few years is the progress made in the prevention and treatment of crippling defects among school children. Since 1925–26 the number of orthopedic schemes has risen from 85 to 216 in 1930–31. The value of this work is found in the early ascertainment of defects, in improved methods of treatment and aftercare, and in the number of cripples who return to school as normal children. In Leeds, for instance, since 1925, 1,506 cripples aged five to sixteen have been provided for, and 75 per cent have gone back to school. Under the Shropshire orthopedic scheme, in which eight counties share, 67 per cent out of 1,671 cases were rendered fit for ordinary schooling, though many of these were serious cases. After suitable training they are able to enter industrial or professional life and do not become a permanent charge on the community. An orthopedic scheme is, therefore, a wise measure of economy, though most people would prefer to regard the helping of suffering children as a spiritual obligation and a call which cannot be disregarded.

In depressed areas new work on such lines is no doubt difficult at the present time, owing to other demands. Economic conditions in these areas have led to an increase in the number of school meals provided. The number of meals given last year was 40,000,000, and the number of children fed by 153 out of 317 local authorities was 295,000. Half of the meals provided were milk meals. A recent investigation undertaken in Lanarkshire, with the co-operation of the Scottish Department of Health, has shown the value of milk as a supplementary article of diet. Some 20,000 children were included in the investigation, 10,000 of whom received a daily supplementary ration of three-quarters of a pint, the remaining 10,000 serving as controls. The results have reinforced the findings of previous experiments and have shown the striking improvement in physique and mental alertness due to this daily ration. This fact is recognized generally, and there is everywhere an increase in the number of milk meals taken in the schools. It is estimated that between 600,000 to 700,000 children receive milk every day under the National Milk Publicity Council's scheme.

EXPERIMENTAL INVESTIGATION OF A FLASH-CARD METHOD OF TEACHING SPELLING

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INTRODUCTION

The investigator recently photographed the eye-movements of sixty-seven good and poor spellers, chosen from various academic levels from the third grade of the elementary school up to the university, while they learned to spell words.[1] Analysis of the records revealed marked differences in the perceptual habits of good and poor spellers, of the mature and immature spellers. The study of the poor spellers was characterized by many fixations, by long and irregular pauses, by frequent regressions, by narrow units of study, and by a general lack of systematic procedure. Having acquired no good method of analysis, the poor spellers failed to distinguish between hard and easy sections of words, frequently expending as much attention on one part as on another. They tended to study by small sections, going over and over the same ground, apparently seeing a large number of minute, unrelated details. On the other hand, the more mature the speller, the more definite was the indication of a tendency to study the word as a unit or as a whole made up of related parts. The typical record of the good speller of the upper levels shows a small number of fixations more or less orderly in arrangement and with few regressions, while the pauses are short and the unit is broad.

These findings indicate that at least part of the trouble of the poor speller is his habit of long study. Either through inclination or training he has developed the habit of going over and over the word, putting in time and effort, perhaps with the idea of "keeping at it until he knows it." It appears probable that better perceptual hab-

[1] L. C. Gilbert, "An Experimental Investigation of Eye-Movements in Learning To Spell Words." Unpublished Doctor's thesis, Department of Education, University of Chicago, 1931.

its would result from speeding up study. If the learner realizes that he has but a brief opportunity to see the word, it is legitimate to suppose that he will attempt to grasp as much as possible and that thus his pauses will be shortened, the number of regressions and other fixations will be cut down, his study unit will be broadened, and a few related perceptions rather than a confusion of many minutiae will be given him.

PURPOSE OF THE EXPERIMENT

The purpose of the experiment reported in this article was to learn whether study in spelling can be speeded up and what effect such procedure would have on efficiency of learning. More specifically, the plan was to make an introductory trial of a flash-card method of teaching with a short exposure period in order to determine whether there were sufficient indications of the value of the method to warrant more extensive investigation.

BIBLIOGRAPHY

So far as the writer could discover, there is nothing in the literature of education concerning experimental investigations of the relative worth of flash-card methods of teaching spelling.

SUBJECTS

Thirty-two pupils in the low-fifth grade of a public school in Berkeley, California, were used as subjects in this investigation. Standardized intelligence-test records indicated that all subjects were of at least average intelligence. No pupil had any physical handicap that would be likely to affect his spelling ability or spelling performance.

PROCEDURE

Three criteria were used in dividing the class into three groups approximately equal as to spelling ability. First, all pupils were given a fifty-word test made up of words studied in class during the current semester. This test is referred to in this article as Test 1. Second, all pupils were pretested on five words which were extremely difficult for the grade. The list included: "definitely," "rheumatism," "accommodate," "conscientious," and "questionnaire." No pupil could spell any of these words correctly. One by one, the children

were taken to a quiet room and were asked to study the five words. They were told to study as quickly as possible, but they were informed that they must learn the words well as they would be tested after the study period was over. The words were typed on individual cards. As the card was presented to the child, the word was pronounced. Each pupil was allowed to study as long as he wished, and the experimenter recorded the time in seconds. Both the pretest and the final test of each pupil were retained, and from these tests the learning efficiency was determined. The determination was made by finding the percentage of letters correctly given, omissions, additions, and substitutions being deducted as errors. For example, if a child spelled *definitely* "defitly," he omitted three letters. Three from ten leaves seven, and the initial spelling efficiency for the word was 70 per cent. If after study the word was spelled "definitly," the final spelling efficiency was 90 per cent, and the child made two-thirds of the improvement necessary for a final perfect performance. Learning efficiency for each child was determined by averaging the improvement on all five words.

On the bases of performance on the fifty-word test, learning efficiency on the five difficult words, and time required for study, the class was divided into three groups of approximately equal ability. For every good speller in Group 1 an equally good speller was placed in Group 2 and another in Group 3. For every poor speller in Group 1 an equally poor speller was placed in Group 2 and another in Group 3. Table I presents the classification data for all members of the three groups and the averages for each of the three groups. The data indicate approximate equality for the three groups. To be sure, Group 1 slightly surpassed the others in the average number of words spelled correctly in the fifty-word test. However, Group 3 slightly surpassed the other two groups in average learning efficiency and in speed of study.

Group 1 was used as the experimental group. In that group words were presented on flash cards for a brief period of time, and the children were drilled in the idea of learning quickly. Group 2 also used the flash-card method, but the pupils were allowed as much time for study as they desired, and no attempt was made to hurry them. This group was used to check the effect of the flash-card

method of presentation. Group 3 was taught by the methods regularly employed in the classroom. Each group was instructed by the

TABLE I

RESULTS OF PROFICIENCY AND LEARNING TESTS GIVEN AT BEGINNING OF EXPERIMENT

Pupil	Number of Misspelled Words on Fifty-Word Test (Test 1)	Percentage of Learning Efficiency	Average Number of Seconds of Study per Word
Group I:			
1	0	71	64.0
2	1	20	16.0
3	1	47	32.0
4	4	23	24.0
5	5	31	19.8
6	9	6	86.0
7	15	8	38.6
8	15	35	148.0
9	19	37	48.4
10	20	39	16.0
11	20	40	87.0
Average	9.9	32.5	52.7
Group 2:			
12	1	50	17.0
13	2	34	45.0
14	4	31	17.0
15	5	35	77.0
16	7	38	58.8
17	9	50	69.0
18	14	27	22.2
19	16	11	50.6
20	16	25	140.0
21	34	31	39.0
Average	10.8	33.2	53.6
Group 3:			
22	1	56	45.0
23	2	26	17.0
24	3	90	47.2
25	6	7	50.0
26	6	51	16.2
27	7	36	68.0
28	7	15	39.0
29	14	12	23.0
30	17	44	97.0
31	18	5	82.0
32	36	32	69.0
Average	10.6	34.0	50.3

same teacher in a room away from the other pupils for fifteen minutes each day for a period of five weeks. All three groups were

taught the same words, namely, those on the low-fifth-grade list not previously taught and certain additional words suggested by the grade teacher as requiring special instruction. These additional words occurred in connection with the daily work.

The preliminary instructions to Group 1, the experimental group, were as follows: "We are going to study spelling a new way. The words are printed on these cards. I will show you a card, and you are to learn the word as fast as you can. Learn it so that you will remember it, but study quickly. When I turn the card away from you, write the word on your paper." On the first day the cards were exposed fifteen seconds, but this time proved to be much longer than was necessary. The second day the period of exposure was shortened to five seconds. Eventually only two seconds were allowed for the easier words. The usual procedure included pronouncing the word, flashing the card, withdrawing it, allowing the pupils to write what they remembered, and having them check their results from a second flashing. The last five minutes of the period were devoted to writing from dictation all the words flashed during the period. Once a week a review test was given.

The preliminary instructions to Group 2 were as follows: "We are going to study spelling a new way. The words are printed on these cards. I will show you a card, and you are to learn the word. Learn it so that you will remember it. When you are through studying, raise your hand. When I turn the card away from you, write the word on your paper." The time of exposure for this group was not limited. As a rule, the children required ten to fifteen seconds for a word. The card was exposed until every pupil had raised his hand. The general procedure was the same as that used in Group 1 except that no attempt was made to speed up the study.

Group 3 was instructed as follows: "We are going to learn our spelling in this new room, but we are going to study just the same way you always do." In this group the procedure was the same as that regularly employed in the Berkeley public schools in the fifth grade, which is carefully described in the teachers' manual.[1] In the main, the procedure is as follows:

[1] *Spelling*. Course of Study Monographs, Elementary Schools, No. 12. Berkeley, California: Public Schools, 1929.

Monday.—Introduce each new word in the week's assignment.

1. Teacher writes the word on the board and pronounces it.
2. Class pronounce, by syllables if word is long.
3. Each word should then be used in a sentence.
4. Test all pupils on the entire list.

Tuesday.—Words misspelled in the pretest are taught and studied. Pupils who missed no words in the pretest are excused from this study period. The number of errors for each word in the pretest should be determined. The relation of the number of errors for any given word to the number of pupils taking the test gives an idea of the degree of difficulty for each and shows which will need the greatest emphasis.

Wednesday.—All pupils are again tested on the entire list. The errors are recorded as on Tuesday, and a comparison is made of the errors on this test with those made on the preceding test.

"If the teaching is well proportioned," says Tidyman "the words will have about the same number of mistakes. When a word is found to have too many errors, it should be carried over into the next day's teaching period."

Thursday.—A socialized lesson on all the words in which all participate. This lesson may be conducted by the pupils with each pupil having an opportunity to call on any member of the class to pronounce, write, spell, or give the meaning of, any word in the list. The pupils will soon learn to vary the procedure, and this opportunity to express initiative contributes to interest.

Friday.—Test entire class on all of the words. Teacher corrects and records the results. Each pupil should be encouraged to try for a perfect score. This emphasis on *perfect mastery* of the week's assignment may be developed by various means—graphs, charts, etc.

NOTE: (1) Some teachers prefer to give the pretest on Tuesday and the final test on Monday because the longer interval of time helps to increase the child's memory span. (2) Contrary to belief that incorrect mental images are established in the pretest, Horn states that "initial errors made in the pretest do not persist."[1]

Provision is made for the frequent playing of games and for widely distributed reviews. It should be noted that no attempt is made to limit the study time for individual words.

All the subjects co-operated well. There was no problem of discipline or inattention. Practically from the first, however, the keenest interest was manifested by the experimental group. Undoubtedly this added interest was the result of the method of teaching. The cards were flashed quickly, and the words were written; no rest period intervened between words; and the request to study fast was

[1] *Ibid.*, pp. 19–20.

TABLE II

RESULTS ON TEST 2 OF TWENTY-FIVE WORDS GIVEN TWO WEEKS AFTER THE BEGINNING OF THE EXPERIMENT

Pupil	Number of Misspelled Words Multiplied by Two
Group 1:	
1	0
2	0
3	0
4	4
5	0
6	2
7	8
8	8
9	6
10	12
11	2
Average	3.8
Group 2:	
12	0
13	1
14	2
15	2
16	4
17	8
18	18
19	6
20	18
21	24
Average	8.3
Group 3:	
22	0
23	2
24	2
25	6
26	10
27	0
28	10
29	12
30	20
31	32
32	30
Average	11.3

frequently repeated. Interest was sustained by the desire of the subjects to do well on the written review at the end of the period. Fifteen minutes proved an excellent length of time; it was long enough for definite accomplishment but short enough to preclude the possibility of fatigue or boredom. At times the work in Group 2 dragged. The cards were exposed as long as any pupil wished to continue study. The quick learners required but a few seconds and were forced to wait for the slow ones. The interest of Group 3, the control group, was better sustained than that of Group 2 but was not so good as that of the quick-tempo experimental group.

After two weeks twenty-five of the hardest words taught were selected for a review test to be given to all subjects. This test is referred to as Test 2, and the results are shown in Table II. Table III compares the results with those on the fifty-word pretest (Test 1)

TABLE III

SPELLING PROFICIENCY OF THREE GROUPS ON TEST 2 COMPARED WITH SPELLING PROFICIENCY ON TEST 1

	Group 1	Group 2	Group 3
Number of pupils who showed gain.....	9	8	5
Number of pupils who made no change..	2	0	2
Number of pupils who showed loss.....	0	2	4

given before the experiment began. (The number of wrong words on the twenty-five-word test has been multiplied by two.) These figures indicate that on the whole the class had not lost ground in spelling because of the experiment. In Group 1 the number of pupils who improved their scores is more than four times as great as the number of pupils who made no change. The greatest improvement took place in the experimental group.

It is of further interest to compare the two tests with respect to the average number of misspelled words in the three groups. Table IV presents these data. (Again the scores on the second test have been doubled to make them comparable with the scores on the first test.) A marked improvement is shown for the experimental group (Group 1), a slight improvement for the unlimited-time group (Group 2), and a slight loss for the control group (Group 3). The loss for the latter group is traceable to one pupil, Subject 31, a poor

speller who had received special help from the classroom teacher before the experiment and who had received no special help during the two weeks of the experimental procedure. Provision was made forthwith for special help for all pupils who showed losses in order that they might not suffer as a result of the experiment. The special help consisted in an added amount of instruction of the type received during the teaching period. That is, those in Group 2 who needed help were taught by the methods used in that group, and so on.

The results on Test 3, a test of twenty words given at the end of the third week, are presented in Table V. (The number of words incorrectly spelled has been multiplied by 2.5 to make the results comparable with those of the previous tests.) Inspection of the figures shows that Group 1 retained the lead in spelling achievement. Seven

TABLE IV

AVERAGE NUMBER OF MISSPELLED WORDS IN EACH OF THREE GROUPS ON TESTS 1 AND 2

Group	Test 1	Test 2
1	9.9	3.8
2	10.8	8.3
3	10.6	11.3

members of this group had perfect papers, and the average number of misspelled words (multiplied by 2.5) was 2.3. Group 2 retained second place with an average of 8.8 misspelled words. Group 3, averaging 11.1 misspelled words, made the poorest record of all. It will be recalled that on Test 2, given the previous week, the average scores of six pupils in the class were poorer than their scores on the fifty-word pretest (Test 1). One of these pupils was absent when the test was given at the end of three weeks. The scores of three of the other five pupils showed gains over the scores on the test of the previous week, and two of the three showed gains over the scores on the pretest. In other words, the class as a whole appeared to be doing at least as well under the experimental procedure as under the regular classroom régime.

At the end of the fourth week Test 4, consisting of the twenty-five most difficult words taught during the two weeks preceding, was given. The results are shown in Table VI. (As before, the aver-

TABLE V

RESULTS ON TEST 3 OF TWENTY WORDS GIVEN THREE WEEKS AFTER THE BEGINNING OF THE EXPERIMENT

Pupil	Number of Misspelled Words Multiplied by 2.5
Group 1:	
1	0
2	0
3	0
4	2.5
5	0
6	2.5
7	15
8	5
9	0
10	0
11	0
Average	2.3
Group 2:	
12	0
13	0
14	5
15	7.5
16	12.5
17*	....
18	12.5
19	7.5
20*	....
21	25
Average	8.8
Group 3:	
22	2.5
23	0
24	2.5
25	12.5
26	7.5
27	5
28	20
29	5
30	25
31	15
32	27.5
Average	11.1

* Absent on the day of the test.

TABLE VI

RESULTS ON TEST 4 OF TWENTY-FIVE WORDS GIVEN FOUR WEEKS AFTER THE BEGINNING OF THE EXPERIMENT

Pupil	Number of Misspelled Words Multiplied by Two
Group 1:	
1	2
2	0
3	0
4	0
5	2
6	6
7	12
8	6
9	6
10	4
11	2
Average	3.6
Group 2:	
12	0
13	0
14	4
15	0
16*	....
17	4
18	4
19	4
20	10
21	14
Average	4.4
Group 3:	
22	0
23	2
24	0
25	6
26	2
27	0
28*	....
29	14
30	10
31	18
32	16
Average	6.8

* Absent on the day of the test.

age number of misspelled words is multiplied by two in order that comparisons may be made with the results of the previous tests.) Inspection of the figures shows that the average number of misspelled words (multiplied by two) is 3.6 for Group 1, 4.4 for Group 2, and 6.8 for Group 3. In Table VII these results are compared with those for Test 1.

These data show a marked improvement on the last test over the pretest for all three groups. Groups 2 and 3 made improvement over the previous week's score, while the experimental group made a slight loss. This result is to be explained by the fact that, owing to the marked superiority of Group 1 in the two previous tests, the teaching time for this group was shortened five minutes during the

TABLE VII

SPELLING PROFICIENCY OF THREE GROUPS ON TEST 4 COMPARED WITH SPELLING PROFICIENCY ON TEST 1

	Group 1	Group 2	Group 3
Number of pupils who showed gain.....	10	8	6
Number of pupils who made no change..	0	1	4
Number of pupils who showed loss.....	1	0	0

fourth week and the teaching time for the other groups was increased five minutes. It should be noted that even with this handicap the experimental group surpassed the other groups on Test 4.

Comparison of Table VI with Table I indicates the general progress of the class. Only one child out of thirty-two made a poorer score on Test 4 than on the pretest (Test 1), and twenty-four made better scores.

RESULTS AND CONCLUSIONS

At the close of the experiment all the subjects were given proficiency and learning tests comparable with those given at the beginning of the experiment. First, the list of words taught was turned over to the classroom teacher, who selected and dictated fifty of the most difficult to the entire class. Next, the subjects were tested individually on the learning of five difficult words. The list includes: "efficiency," "immediately," "extravagant," "stenographer," "ma-

neuver." Pretests showed that no child could spell any of these five correctly. The examiner took the pupils one by one to a quiet

TABLE VIII

RESULTS OF PROFICIENCY AND LEARNING TESTS GIVEN AT END OF EXPERIMENT

Pupil	Number of Misspelled Words on Fifty-Word Test (Test 1)	Percentage of Learning Efficiency	Average Number of Seconds of Study per Word
Group 1:			
1	1	77	28.0
2	1	76	10.8
3	1	71	30.0
4	3	44	12.6
5	8	16	16.2
6	2	64	33.8
7	17	31	20.0
8	10	39	52.0
9	18	25	21.0
10	8	41	19.3
11	8	74	47.8
Average	7	50.7	26.5
Group 2:			
12	0	80	13.0
13	0	44	13.0
14	6	24	15.6
15	2	56	61.6
16	12	41	24.6
17	14	30	29.0
18	3	19	50.0
19	14	27	19.8
20	19	40	52.4
21*	33	46	40.0
Average	10.3	40.7	31.9
Group 3:			
22	0	98	38.8
23	1	60	12.0
24	2	45	18.8
25	8	33	24.4
26	5	43	30.0
27	14	51	49.0
28	7	32	19.2
29	13	36	14.2
30	7	28	82.4
31	26	35	82.0
32	18	32	35.6
Average	9.2	44.8	36.9

* Pupil 21 missed the pretest on the five difficult words. In view of the fact that she was not in the experimental group, she was given the benefit of the doubt and given credit for all that were correct on the final test.

room and presented the words singly for study. As before, each word was typed on a blank card. The pupils were requested to study as quickly as possible, but they were told to learn the words well as they would be tested after the study period was over. As the card was presented, the word was pronounced. The time of study for each word was recorded. Both the pretest and the second test were retained, and learning efficiency was computed as before. The number of misspelled words on the fifty-word test, the average study time for a word on the learning test, and the average learning efficiency for each subject and for each group are shown in Table VIII.

These data indicate definite superiority for the experimental group in all three characteristics. Group 1 is in first place with respect to proficiency on the fifty-word test, as the average number of misspelled words is 7, while the average for Group 2 is 10.3 misspelled words and that for Group 3, 9.2 misspelled words. To be sure, Group 1 slightly surpassed the others on the first fifty-word test, but it increased its average lead of 0.9 of a word over Group 2 to 3.3 words and increased its lead of 0.7 of a word over Group 3 to 2.2 words.

Table I shows that on the original learning test Group 3 had the highest average learning efficiency, Group 2 took second place, and Group 1, third place. However, the difference in the percentages for any two of the groups is not as great as 2. Table VIII shows that Group 1 in the final learning test took first place with a difference in percentages of 10 over Group 2 and a difference in percentages of 5.9 over Group 3. Group 1 stood second in average amount of study per word on the original learning test (Table I) but advanced to first place on the final test with a lead of 5.4 seconds over Group 2 and a lead of 10.4 seconds over Group 3.

SUMMARY

No final statement can be made at this time with regard to the value of this flash-card method of teaching spelling. The experiment lasted but five weeks and included but thirty-two subjects. The results are sufficiently definite, however, to indicate the worth of a similar experiment on a larger scale with more conclusive methods of evaluation. The pretests indicate that in the beginning the three groups were approximately equal. After five weeks of instruction

the experimental group surpassed the other two groups in learning efficiency and in time of study. It is further significant that interest and attention were better in the experimental group than in either of the other two groups as a result of the speed of procedure.

A further experiment should involve a large number of subjects, all the school grades in which spelling is taught, and a long period of time for experimentation. It should determine the extent to which words taught by the new method are retained, and it should compare old and new methods with respect to the ability of the subjects to use the words correctly in context. It should reveal such details as the proper length of exposure for individuals of varying degrees of maturity in spelling. Particularly it should investigate the progress of the poor spellers. Photographic records of eye-movements should be analyzed to discover symptoms of improvement in perceptual habits, especially in types of analysis employed.

While the present experiment serves to introduce these problems, in itself it demonstrates that teaching by flash cards with a limited length of exposure has definite value in cutting down perceptual time. In the case of the subjects investigated this decrease was accompanied by increased proficiency in both immediate and delayed recall.

SUMMARY OF INVESTIGATIONS RELATING TO GRAMMAR, LANGUAGE, AND COMPOSITION (JANUARY, 1929, TO JANUARY, 1931). II

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The objective studies named in the bibliography which appeared in the December, 1931, issue of the *Elementary School Journal* are classified and reviewed in this and a subsequent article under four general headings: (1) investigations concerning the curriculum, (2) investigations in correct usage, (3) investigations in the field of written composition, and (4) investigations in methods of teaching.

INVESTIGATIONS CONCERNING THE CURRICULUM

Language activities in daily life.—Three investigators have endeavored to determine suitable objectives of instruction in English composition by analyzing social needs. Barnes (6)[1] studied certain aspects of the out-of-school language activities of children in junior high school grades. Records from 4,979 children revealed 25,864 language situations, 31,511 topics used in expression, and 36,809 types of language activity. The most significant conclusions reached by Barnes are:

1. The out-of-school language activities indicate that American boys and girls of the seventh, eighth, and ninth grades are sufficiently similar and homogeneous to be regarded as a somewhat close-knit and closely integrated group. . . . .

6. Children use language for definite, practical purposes. . . . .

8. The language of children is largely social. . . . .

12. Probably more than 98 per cent of the out-of-school language of children is oral. . . . .

14. The topics that children talk and write about are: first, personal and local; second, present, contemporary, current; and third, concrete and definite. . . . .

[1] Numbers in parentheses refer to the numbered bibliography in the December, 1931, issue of the *Elementary School Journal*. In the case of quotations page references also are given.

15. The four most frequently mentioned topics of language are: play, personal interests and hobbies, social groupings and activities, and work [6: 3–4].

Symonds (**54**) compiled a list of topics from various investigations, student suggestions, and textbooks. Among the topics for written composition rated by forty-five graduate students as to reality and importance are: narration of a personal incident, narration of a radio program, criticism of a school procedure, criticism of a motion picture, story of a game, criticism of school marks, and reaction to a school subject. Oral activities which rate high in reality and importance are: telling a joke, discussing matters of common interest, telephoning, challenging and defending statements, report of a motion picture, giving directions for making or doing something, explaining difficult problems, and giving directions for reaching places.

Baker (**4**) tabulated the replies of one thousand pupils in Grades III–VII who reported their out-of-school English activities. The most frequent uses for spoken English reported are: (1) conversation, (2) business, (3) courtesy, (4) games, (5) telephoning, (6) church and Sunday school, (7) reading aloud, (8) questions—asking and answering, (9) entertaining or teaching children, and (10) story-telling. Baker's list of uses for written English includes: (1) letters; (2) stories and poems; (3) lists for purchasing; (4) business forms—checks, receipts, etc.; (5) telegrams; (6) secretary's reports; (7) advertisements; (8) reports; (9) signs, posters, and so on; and (10) diaries. Baker's findings are in agreement with Johnson's earlier list[1] of functional centers of expression, although the replies of the younger pupils are less definite than the replies made by college students. Such studies furnish guidance for the revision of the English curriculum in the light of social needs.

Standards determined by analytical studies of activities.—An example of redefining the curriculum in terms of social activities is found in Johnson's analysis (**31**) of the desirable qualities of the participants in round-table discussions. He secured traits from interviews, questionnaires, selected readings, and lists of individual difficulties. The traits were ranked as to importance by seventy-nine

[1] As reported in R. L. Lyman, *Summary of Investigations Relating to Grammar, Language, and Composition*, p. 19. Supplementary Educational Monographs, No. 36. Chicago: Department of Education, University of Chicago, 1929.

competent judges. Urgent need exists for adequate standards in connection with the various activities of the English curriculum. The list of standards derived by Johnson will show the character of the results which may be obtained by careful analytical studies.

The desirable qualities of a leader in round-table discussion are: (1) skill in directing the discussion, (2) good understanding of subject under discussion, (3) fairness, (4) ability to secure participation, (5) firmness, (6) knowledge of parliamentary rules, (7) tact, (8) modesty, (9) ability to speak concisely and clearly, (10) ability to think quickly and accurately, (11) self-control, (12) courtesy, (13) broadmindedness, (14) practical knowledge of psychology, (15) sense of humor, (16) originality, (17) correct use of English, (18) democratic spirit, (19) pleasing voice qualities, and (20) enthusiastic interest (**31**: 46).

Language development of young children.—Studies of preschool children by McCarthy (**37**) reveal that the percentage of comprehensible responses increases rapidly with age. The simple sentence with a phrase, the complex sentence, and the compound sentence all appear late and continue in only small proportions through the preschool period. When a child is two years of age, verbs, nouns, and adverbs are the parts of speech used most frequently; when the child is five years old, verbs and pronouns are most frequent. Rugg, Krueger, and Sondergaard (**49**) found that kindergarten children are self-assertive, that they are interested in themselves and their own affairs, that they have little intellectual curiosity and little ability in more than the simplest forms of experimental thinking. Betzner (**8**) reported that children of the ages five to eight respond with a variety of themes; more than any other form of expression they employ realistic narratives told seriously.

Specifics sought through analysis of courses of study and textbooks.—One junior high school, as reported by Nash and Bush (**42**), attempted to determine the grade placement of items of grammar and to eliminate nonessentials. Opinions of teachers were checked with five of the "most recent representative courses of study throughout the country at large" (**42**: 310). Items were retained and grade placement was determined according to a composite score secured from the representative courses used in the study.

Pressey and Pressey (**46**), by analyzing textbooks in foreign lan-

guage and in English composition, attempted to determine the language concepts needed by college Freshmen. Two lists of concepts were compiled from the study: (1) forty-five concepts that should be known by students who have studied no foreign language and (2) forty-one concepts that should be known by students who have studied a foreign language for two years in high school.

Specifics sought through social utility of items of usage.—Through an analysis of stenographic reports of 107,000 words of conversation of high-school pupils, Matravers (**40**) selected the items of grammar which have the greatest "social utility" and the items which furnish the most frequent opportunity for error. He found that accuracy in eighteen forms of usage would eliminate 63.8 per cent of the actual errors. The indexes of social utility range from 30.7 per cent for "ain't" and the corresponding forms of the verb "to be" to 0.0 per cent for the past tense form of the verb "lie." One form of the double negative ranks second, and "those or them books" ranks third in the list of errors.

Specifics sought through analysis of errors.—By means of an eight-semester trial of minima in English grammar and punctuation with ninth-grade classes in which pupil mastery of specific items was objectively measured, Craig determined the following list of minimum essentials in grammar for which mastery may be maintained (**14**: 13–14).

1. Recognition of the simple subject
2. Recognition of a sentence as distinguished from fragments of sentences or run-on sentences
3. Recognition of the simple predicate—only when the predicate consists of one word
4. Recognition of the direct object—only when there is no other object to confuse the pupil
5. Recognition of the predicate noun
6. Recognition of the predicate pronoun
7. Recognition of the predicate adjective
8. Recognition of the parts of speech—only in the instance of the adverb and the interjection

Mastery may be maintained for the following elements of punctuation and capitalization.

1. The placement of a capital at the beginning of a sentence
2. The capitalization of names of cities, states, and months (proper nouns)

3. The use of a period to close a declarative sentence
4. The use of the comma to separate the day of the month from the year

Mastery cannot be maintained for the following items of grammar.

1. Recognition of the simple predicate consisting of more than one word
2. Recognition of the direct object when another objective appears in the sentence
3. Recognition of the noun, pronoun, adjective, verb, preposition, and conjunction when the requirement is a perfect score upon each sentence

Mastery cannot be maintained for the following items.

1. The capitalization of proper adjectives
2. The capitalization of beginning lines of poetry
3. The use of a question mark at the end of an interrogative sentence
4. The use of the comma to separate a date from the remainder of the sentence
5. The use of the comma to separate the numbers of a series
6. The use of the comma to separate the name of a city from the name of a state

Harap (**23**) presented a common-error list in grammar, punctuation, and sentence structure compiled from the findings of thirty-three investigations in correct usage. The list contains 106 specific items that "should be treated as separate units for purposes of instruction" (**23**: 441). These items are distributed under eight categories: forty-four verb uses, twelve pronoun uses, eight adjective and adverb uses, six preposition and conjunction uses, ten noun uses, six items of sentence structure, fifteen uses of punctuation marks, and five uses of capital letters.

From the results of short periods of experimental teaching, Guiler (**21, 22**) determined items of capitalization and punctuation the teaching of which probably should be deferred beyond the sixth grade. Such items of punctuation are: dash or dashes to indicate a sudden break in thought, colon after an introductory expression, semicolon between clauses of a compound sentence joined by a conjunctive adverb, semicolon between co-ordinate clauses not joined by a conjunction, exclamation mark after an expression of surprise or emotion, comma to set off an added element at the end of a sentence, comma to prevent misreading, comma or commas to set off words of direct address, comma to set off parenthetical expressions, comma after a dependent clause when it precedes the main clause. The items of capitalization are: abstract words strongly personified,

names of notable historical events, names of notable historical movements, first and important words in a title, names of sacred books, names of days of special observance, and first word of any direct quotation which is not a complete sentence (use of small letter).

Tendencies toward functional grammar.—Rivlin (**47**) found that 60.3 per cent of the grammar in English textbooks published in 1930 is functional grammar, while only 25 per cent of the grammar in textbooks published in 1900 is functional. After a comprehensive review of earlier studies in the field and the compilation of an exhaustive list intended to include all items of grammar, Rivlin also presented the ratings of the various items by several groups of judges. One hundred and sixteen elementary-school teachers, sixty-two high-school teachers, forty-nine graduate students in English, and four "experts" expressed their judgments as to the importance of each item. Both the judgments and the comparisons seem of small value. However, Table XVI, "The Functions of the Items of Grammar" (**47**: 62–80), if accurate, is very illuminating. For example, the objective case of the noun has under it ten "constructions": direct object, object of preposition, in apposition, indirect object, adjunct, adverbial objective, predicate accusative, retained object with passive voice, subject of the infinitive, and secondary object. The table indicates that not one of the ten items functions in the correct use of nouns in the English language. Non-functional is the judgment given of a very large share of the items included in Table XVI. The author defines "function" admirably as "that application of the knowledge of a grammatical item which will prevent the commission of an error in English or which will assist in the correction of an error already made" (**47**: 61). Unfortunately, he does not explain how the "functional" or "non-functional" values were ascertained. Moreover, this informative and challenging table apparently has no significant relation to the judgments of values elaborately presented in other parts of the study. The outstanding fact is that, of 189 items of grammar listed, 69 are classed as non-functional. Unquestionably many of the remaining items "function" but slightly, if at all.

Measuring textbooks by educational principles.—Marye (**39**) set up a list of purposes that textbooks ought to accomplish. She con-

sidered (1) an analysis of six modern textbooks, (2) judgments of one hundred teachers of English, (3) tendencies in recent courses of study, and (4) authoritative statements of leading educators. From these sources Marye developed a form for measuring English textbooks. The major characteristics of a good textbook according to her rating form have to do with (1) mechanical makeup; (2) organization of subject matter; (3) general methods; (4) content of expression; (5) development of expression; (6) motivation of expression; (7) content of mechanics: grammar; (8) content of mechanics: punctuation, capitalization, spelling, word study; (9) methods used to develop mechanics; and (10) miscellaneous materials.

TABLE I

CONTENTS OF LANGUAGE TEXTBOOKS PUBLISHED IN TWO PERIODS

TOPIC	PERCENTAGE OF SPACE	
	1920–24	1926–28
Grammar	50.1	58.1
Literature: models	11.7	8.3
Composition: study helps	38.2	33.6

Dawson (15) found that the five tendencies mentioned most frequently and treated most intensively in recent textbooks for Grade VII are: (1) extension and mastery of vocabulary, (2) creation of audience situations, (3) drill in the use of mechanically correct written English, (4) utilization of an elaborate technique in teaching composition, and (5) emphasis on oral composition. Dawson compared the percentage of space devoted to the different topics of English in textbooks published in 1920–24 with the percentage of space given the same topics in textbooks published in 1925–28. The results are given in Table I.

English curriculum of teachers' colleges.—Meadows (41) analyzed the work in English composition in teachers' colleges. Data were secured from catalogues of teachers' colleges, observations of English-composition classes, textbooks, reference books, bulletins, term-examination questions concerning composition, class projects, themes, published works, questionnaires, conferences with teachers, and stenographic reports of composition classes. Meadows concluded

ed: (1) There is a greater tendency today to correlate composition with life than at an earlier time. (2) Textbooks are not meeting the needs of teachers. Twenty-nine per cent of the pages in textbooks are devoted to topics other than fundamentals. (3) More than 90 per cent of the term examinations deal with fundamentals of English. (4) The difference between objectives in teaching composition in teachers' colleges and in high schools is one of degree and not of kind.

Coale (13) secured the judgments of high-school teachers of English concerning the preparation in college that is best suited to the needs of the teacher of English. The co-operating teachers counted the following objectives of chief importance: skill in oral and written expression, skill in silent reading, enjoyment of general reading, and standards of personal conduct. Chief emphasis in professional courses, according to the judgments of English teachers, should be given to the following items:

> Knowledge of a wide range of literature, of literary types, of Shakespeare, of recent literature, of literary criticism, and of rhetoric; ability in oral reading, in public speaking, in descriptive and narrative writing, and in expository and persuasive writing; knowledge of the principles of education and of educational psychology; knowledge of objectives in English-teaching and of current problems and progress in the subject; ability to present literature before the class; knowledge of history, of social science, and of general psychology; and a discriminative literary taste [13: 57].

INVESTIGATIONS IN CORRECT USAGE

Errors in oral English.—Pavey (44) determined the abilities of pupils of Grades V, VI, and VIII to discriminate between conventional and unconventional tense forms and case forms. She discovered that the chief causes of errors are inaccurate auditory perception, complexity of grammatical construction, and transfer of faulty language habits. The third cause plays a smaller part than is usually attributed to it. Pavey further determined that high frequency of error bears little relation to the difficulty of a language concept. For example, certain irregular verbs, reported by earlier studies[1] as having high frequency of error, in Pavey's study did not prove more difficult for elementary-school pupils than did other supposedly less difficult irregular verbs. Case forms of pronouns proved to be more

[1] R. L. Lyman, *op. cit.*, p. 74.

troublesome than tense forms of verbs. Error quotients[1] indicate that the difficulty in discrimination between right and wrong case forms varies with the complexity of sentence structure.

Comparison of ability of pupils in oral and written English.—Lull (35) compared the speaking and writing abilities of elementary-school pupils as to the content of the compositions, grammatical correctness, and diction in order to determine which of the two modes of expression is more effective at the different grade levels. He found that "the transition from greater excellence in spoken discourse to greater excellence in written discourse took place . . . . between the 4 A grade and the 5 B grade" (35: 76).

Bushnell (10) made comparisons between the oral expression and the written expression of one hundred tenth-grade pupils with respect to the following: rating on Van Wagenen English Composition Scale; errors in grammar, sentence structure, and good usage; language usages in themes of different quality levels; vocabulary; and the relations between sex, fluency, and marks in oral and written composition. Written expression is consistently superior in thought content and sentence structure and less subject to all errors. Contrary to the findings of other studies,[2] confusion of adjectives and adverbs was not prominent in Bushnell's study. No significant differences in the grammar of oral and of written expression appeared. Eighty per cent of oral errors and 68 per cent of errors in writing were made in sentence structure.

Errors in written English.—By analyses of compositions from each grade level from Grade IV through Grade XII, Symonds and Lee (58) found that punctuation improves with composition quality as pupils progress through school. Punctuation errors reach a maximum frequency in about sixth or seventh grade, at the time when pupils are attempting new forms of expression. Errors in the use of capital letters decrease in number as the quality of compositions improves (59). Errors are more frequent in capitalizing common nouns than in omitting the capitals with proper nouns. The habit of capitalizing the first word of a sentence is formed early in the grades, but recognizing a sentence proves difficult throughout the high-school period. Such errors show the need to "distinguish between the use

[1] *Ibid.*, p. 107. [2] *Ibid.*, p. 86.

of correct mechanics of punctuation and capitalization and recognition of the cues which control their use" (**59**: 691). Symonds and Daringer found that "weak, broad, or divided reference of pronouns is the most prominent error in sentence structure throughout the whole school program" (**57**: 59).

Rodgers (**48**) classified language errors in 1,200 compositions of high-school pupils in 106 items of grammatical usage. Of the 9,324 errors recorded, 7,735, or 82 per cent, were distributed in 24 headings. The five usages which caused 37 per cent of all the errors are: (1) the use of capitals with proper nouns and pronouns; (2) use of "shall" and "will"; (3) use of verbal contractions; (4) use of adverb, with special emphasis on the needless adverb; and (5) use of adjective for adverb, or adverb for adjective.

Errors in written English of college Freshmen.—An analysis of 200 letters of application written by entering students in teacher-training institutions of Ohio, made by Ashbaugh (**1**), revealed the following as the most frequent errors: misuse of comma, 275 errors by 136 of the applicants; capitalization errors, 182 errors by 104 applicants; errors in spelling, 108 errors by 59 applicants; and errors in paragraphing made by 62 applicants. Chapman (**11**) examined university entrance examination essays and classified two thousand errors in fifteen categories: (1) vocabulary, (2) spelling, (3) clarity, (4) preposition and conjunction, (5) carelessness, (6) punctuation, (7) grammar: pronouns, (8) grammar: verbs, (9) sentence structure, (10) slang, (11) apostrophe, (12) use of capital, (13) confusion of adjectives and adverbs, (14) quotation marks, and (15) miscellaneous.

Fifty-two types of errors made by 638 entering college Freshmen were classified by Eason (**18**) under five major headings: (1) punctuation, 37 per cent; (2) sentence structure, 23 per cent; (3) spelling, 23 per cent; (4) capitalization, 12 per cent; and (5) grammar, 5 per cent. Clark (**12**) studied the frequency and persistency of errors in sentence structure made by university Freshmen. Three items—sentence fragments, stringy sentences, and comma splice—caused over one-third of the total number of errors. Comparison of errors made at the beginning of the year with those made at the end of the year showed a high percentage of decrease for certain types of errors, namely, the wrong use of modifiers, the use of fragments, lack of

proper subordination, redundancy and repetition, and inconsistencies in structure.

Errors in writing of senior-college students.—Dudley (**17**) analyzed papers of 144 senior-college students written for classes other than English and determined the percentage distribution of errors in four major groups: (1) coherence, clearness, and smoothness, 48.5; (2) grammar, 22.6; (3) diction, 15.1; and (4) punctuation, 13.8. Thirty and three-tenths per cent of the errors in coherence were classified as "general vagueness, awkwardness, or inexactness." Errors as to agreement in number of subject and verb caused 48.1 per cent of the total errors in grammar. Of the diction errors, 31 per cent were classed as the wrong use of a word. The fragmentary sentence caused 41.5 per cent of the punctuation errors. Dudley pointed out the need for (1) co-operation between the English department and other departments in the teaching of English and (2) greater motivation on the part of English teachers.

Errors found through formal tests.—DeBusk (**16**) administered a language-usage test based on items found in recent textbooks to 13,802 elementary-school pupils and 6,820 high-school pupils. He found that seven errors are constant and are responsible for 34.2 per cent of all errors in the elementary school and that five of these seven are among the most common errors of high-school pupils. The five errors which persist in high-school work are illustrated by the following expressions: "Between you and *I*"; "That is *him*"; "Jane likes Betty and *I*"; "It was *her*"; "I like *these* kind of pears." Stoddard (**52**), who administered the Iowa Tests on English Essentials to 7,000 high-school pupils, reported a fair gain in achievement from Grade IX to Grade XII but found high variation in the performance of individual pupils, the range of scores running from 3 to 190.

Need is revealed for agreement among schools as to the amount of individual variation that is permissible and for evidence to determine the extent to which emphasis on excellence in literary style and literary appreciation results in low achievement in mechanical features.

Sullivan (**53**) analyzed the errors of 16,660 high-school pupils on a minimum-essentials test made up of 100 points: 25 in spelling, 40 in punctuation and sentence structure, and 35 in grammar. She found

that "without exception in any class of schools punctuation and sentence structure are the least well mastered" (53: 20). The capitalization of the proper adjective is the cause of greatest trouble. Other items of punctuation and sentence structure causing great difficulty are: possessive forms, apostrophe for contractions, use of the capital to begin a quoted sentence, and the run-on sentence or comma splice. The grammatical errors made most frequently concern the agreement of the adjective with its noun (*this kind*), the agreement of the verb with its subject, and pronoun case forms.

Validity of formal language tests.—Henmon (27) found that the most reliable single index for prediction of achievement in college-Freshman English is the reading and marking of test themes. The coefficient of correlation of such testing with first-semester marks was found to be .66. The Wisconsin Language Test, a close second to test themes, showed a correlation of .60 with first-semester marks. The combination of theme-rating with the language-test scores gave a multiple-correlation coefficient of .72 with first-semester marks. In the light of the evidence Henmon considers the language test of satisfactory predictive value but suggests the addition of another set of twenty-five items which were shown experimentally to improve the validity of the test as a whole.

Hartson (25) reported a five-year study of the value of objective English tests in sectioning college Freshmen for English-composition courses. Comparison of the results of sectioning students by theme-reading and of sectioning on the basis of scores secured through administering a battery of English tests showed that the test scores were more valid measures and were more quickly obtained.

Relation between English marks and success in college.—Lauer and Evans (33) studied the relations between high-school marks and college success and between high-school marks and intelligence scores of students in technical courses—agriculture, engineering, home economics, industrial science, and veterinary medicine. They found that English aptitude is most closely associated with intelligence as measured by group tests but that high-school average marks are slightly superior to intelligence-test scores for prediction of first-quarter marks in English.

[*To be concluded*]

IMPROVING THE MECHANICS OF READING

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During the school year 1930–31 J. G. Hulton, superintendent of schools in Latrobe, Pennsylvania, arranged for the Extension Division of Pennsylvania State College to direct a program for the improvement of the mechanics of reading. Three fields were to be included: narrative reading, the reading of written problems in arithmetic, and the reading of the history textbook.

In December two group intelligence tests were given to the pupils in the first eight grades. The Gates Silent Reading Tests were given in the first three grades and were used for individual diagnosis in Grade IV and above. The Speed Test and the Vocabulary and Paragraph Meaning Test of the Pressey Diagnostic Reading Tests were given in Grades IV–VIII, inclusive; the Stone Narrative Reading Tests in Grades IV–VIII; the Stevenson Arithmetic Reading Test in Grades V–VIII; and the Van Wagenen Reading Scales in History in Grades VII and VIII. The second forms of all reading tests were given the first week in May.

In the first week in January a drill program was instituted in Grades IV–VIII. Each week all teachers of reading gave three time-pressure drills on easy narrative material. The average speed and comprehension of the room on each drill was recorded on a large wall graph. Each child recorded his own speed and comprehension on an individual progress chart. This procedure was continued for ten weeks.

During the same period the teachers of arithmetic gave special attention to the reading of all written material. The Hoyt and Peet arithmetics[1] were the adopted textbooks. Each school also used sets of *Problems without Figures*.[2] The latter constituted the only practice material available. Children read this material to determine the

[1] Franklin S. Hoyt and Harriet E. Peet, *The New Everyday Arithmetic*, First, Second, and Third Books. Boston: Houghton Mifflin Co., 1926 and 1927.

[2] L. I. Shaw, *Problems without Figures*. Dansville, New York: F. A. Owen Publishing Co., 1924.

process, to give approximate answers, and to gain command of the vocabulary. Reading tests were improvised by so simplifying the number situations in a series of written problems that there would be no computation difficulties.

The teachers of history constructed drill exercises from the textbooks. These exercises were given once each week. But little direction was given to this work, since it was assumed that there would be a large carry-over from the work of the teachers of reading. However, the results indicate that this assumption was in error; ability to read a story does not guarantee ability to read history materials.

A normal gain from December to May would be one-half grade. All results are indicated by grade scores. If grade scores are not given in the directions for the tests, they have been calculated.

The Pressey Speed Test does not measure the direct results of teaching, nor does it measure the normal reading rate. It is a measure of how fast a child can read and mark correct answers to questions scattered throughout the reading material. The score is based on the number of correct answers. The child is confronted with an unnatural reading situation, one that he has not met in any of his class exercises. The results are therefore only indirect results of the teaching of reading. The results of the preliminary and final tests given the children of Latrobe are shown in Table I. Grades IV, V, and VII gained one grade, twice the average gain; Grade VI gained three-fourths of a grade; and Grade VIII gained two grades.

The Pressey Vocabulary Test consists of one hundred questions, each followed by four words or phrases, one of which is the correct answer. These words are taken from Thorndike's *The Teacher's Word Book*[1] and are arranged in the order of frequency. A child's reading vocabulary depends largely on the extent of his reading and only incidentally on direct instruction. During the experiment no vocabulary drills, phonetic drills, word drills, or dictionary drills of any sort were used. The gains in vocabulary were entirely incidental to the instruction given in reading. The scores on the preliminary and final tests given in Table I show that the gains made were 1.5–3.0 times the average gain.

[1] Edward L. Thorndike, *The Teacher's Word Book*. New York: Teachers College, Columbia University, 1921.

The Pressey Paragraph Meaning Test consists of sixty paragraphs, with no thought connections between them. The child selects and underscores the topic sentence in each case. Again, this test measures only an incidental result of the teaching of reading. No instruction was given in the selection of topic sentences. The results of the tests given in Table I show that two grades made but average gain; one grade gained 1.5 times the average; one grade, twice the average; and one grade, 2.5 times the average.

TABLE I

GRADE SCORES MADE ON PRELIMINARY AND FINAL TESTS BY PUPILS IN GRADES IV–VIII

TEST	GRADE IV		GRADE V		GRADE VI		GRADE VII		GRADE VIII	
	Preliminary Test	Final Test	Preliminary Test	Final Test	Preliminary Test	Final Test	Preliminary Test	Final Test	Preliminary Test	Final Test
Pressey Speed Test	4.50	5.50	6.00	7.00	5.75	6.50	7.00	8.00	7.00	9.00
Pressey Vocabulary Test	4.00	5.00	5.00	6.25	6.00	6.75	6.75	8.25	7.75	8.50
Pressey Paragraph Meaning Test	4.00	5.00	5.25	6.00	6.00	6.50	7.00	8.25	8.50	9.00
Stone Narrative Reading Tests (rate)	4.50	7.00	7.00	10.50	6.00	7.50	7.00	10.00	8.00	9.00
Stone Narrative Reading Tests (comprehension)	4.50	5.00	5.50	6.50	6.00	7.00	7.00	8.00	7.00	9.00
Lowry Intermediate Reading Test (rate)	.....	7.00	.....	10.50	.....	7.75	.....	.....	.....	.....
Lowry Intermediate Reading Test (comprehension)	.....	6.00	.....	6.00	.....	7.00	.....	.....	.....	.....
Stevenson Arithmetic Reading Test	.....	.....	4.75	5.50	5.50	7.00	6.00	9.00	7.00	9.25
Van Wagenen Reading Scales in History	.....	.....	.....	.....	.....	.....	6.50	7.50	6.50	7.00

The Stone reading tests measure the results of teaching more directly. These tests consist in a long story, or two short stories, to be read as one usually reads stories. A special timing device gives the rate at which each child reads the entire story. A multiple-choice test is given to test the child's comprehension. In Grades IV–VI the first of the two stories was given as a preliminary test, and the second story was given as the final test. In Grades VII and VIII the seventh-grade test and the eighth-grade test, respectively, were given at the beginning and were reversed for the final test. The rate scores are not affected by this alternation, but the comprehension scores are affected and may not be reliable. The results of the preliminary and the final tests given in Table I show that in rate of

reading one grade gained 1.0 year; one grade, 1.5 years; one grade, 2.5 years; one grade, 3.0 years; and one grade, 3.5 years. In comprehension one grade gained only as much as the average; three grades, twice the average; and one grade, four times the average.

The Lowry Intermediate Reading Test was given to Grades IV, V, and VI at the end of the drill period. The results, shown in Table I, were similar to those on the Stone test. The average was almost 3.5 years above the standards for these grades in rate and 1.3 years above the standards in comprehension.

During the drill period the teachers of arithmetic had no way to check their results. All felt the need of more definite materials and an organized method of attacking the problem. None felt competent to teach children to read arithmetic, and yet they felt that as teachers of arithmetic they should know best how to do it. In the past it had been assumed that, if the teachers of reading taught the children to read, the pupils would be able to read arithmetic materials as well as everything else. In many recent so-called "silent readers" a few lessons of questionable value in the reading of arithmetic are included. Since the preliminary tests showed that every grade was below standard, all the teachers of arithmetic made every effort to make progress.

The Stevenson Arithmetic Reading Test consists of six problems. Under each problem are four multiple-choice tests, one testing ability to determine essential fact, one testing ability to decide the fact to be determined, one testing ability to choose the most reasonable answer, and one testing ability to choose the fundamental process to be used in the solution. The grade scores made on the December and the May tests are given in Table I. It is probable that Grade VIII would have made a higher score if the test had been more difficult. More than 40 per cent of the children in that grade made perfect scores. Grade V made but little more than average gain in ability to read arithmetic problems, but the other grades made from three to six times the average progress.

The Van Wagenen Reading Scales in History are standardized for Grades VIII–XII. However, this test was given in both Grades VII and VIII, although Grade VIII does not study history. Any gains in Grade VIII would, therefore, result from the drills on story mate-

rial given in the reading class. Grade VII gained a full year, while Grade VIII gained but one-half year. A textbook test was arranged for Grade VI. The average speed of reading was 225 words a minute. This average is normal for Grade VII on narrative material. The average comprehension was 87 per cent. The teachers of history were unanimous in the opinion that their classes covered more material and recited with greater interest and with greater accuracy of fact than any classes they had previously taught.

SUMMARY

1. During a ten weeks' drill period, with the use of time-pressure drills, the children in Grades IV–VIII, inclusive, in the public schools of Latrobe, Pennsylvania, gained an average of 1.15 grades, or school years, as measured by the Speed Test of the Pressey Diagnostic Reading Tests.

2. The pupils made an average gain of 1.05 grades on the Vocabulary Test of the Pressey tests.

3. The average gain on the Paragraph Meaning Test of the Pressey tests was 0.8 of a grade.

4. The average gain, as indicated by the Stone Narrative Reading Tests, was 2.3 grades in speed and 1.1 grades in comprehension. The most unusual gain was made by Grade V. The average speed for the six sections in that grade was 315 words a minute. The fifth-grade standard is 170 words a minute. The eighth-grade standard is 240 words a minute.

5. A great variety of drill procedures were carried on to improve the ability to read arithmetic materials. It is not known which of these were the most effective. The average gain in Grades V–VIII, inclusive, was 1.88 grades. The greatest gain was made by Grade VII, which gained three grades, or six times the average gain.

6. No adequate measure of reading ability in history was available. The Van Wagenen test was given to Grades VII and VIII, although this test is standardized for Grades VIII–XII. In Latrobe Grade VIII does not study history. Grade VII made a gain of one year, and Grade VIII made a gain of one-half year. Grades V and VI almost doubled their rate of reading the textbook. So far as could be estimated, the comprehension seemed to have increased greatly.

RELATIVE DIFFICULTY OF THE ONE HUNDRED MULTIPLICATION FACTS WITH SPECIAL REFERENCE TO TEXTBOOK CONSTRUCTION

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Introduction.—Norem and Knight in the Twenty-ninth Yearbook of the National Society for the Study of Education[1] bring forward valuable additional information about the learning difficulties of the basic multiplication facts. They also compare their findings with those of Clapp published in 1924.[2] It is to be regretted that they did not make comparisons with the work of Fowlkes,[3] which was closely similar. The inclusion of the Fowlkes data would have strengthened the conclusions which were drawn by Norem and Knight.

The present article brings together certain salient facts about these three studies in a comparative way, with special reference to textbook construction.

Although a number of studies of the relative frequencies of error in the basic arithmetic facts and operations have been made, only those of Fowlkes and of Norem and Knight have attempted rigid controls of the experimental situation. Clapp's study, for example, suffers from several rather serious limitations:

1. The previous number experiences of the pupils tested were largely unknown quantities.

2. The textbooks studied by the experimental group were not modern and had not been constructed with the idea of calculated

[1] Grant B. Norem and F. B. Knight, "The Learning of the One Hundred Multiplication Combinations," *Report of the Society's Committee on Arithmetic*, pp. 551–68. Twenty-ninth Yearbook of the National Society for the Study of Education. Bloomington, Illinois: Public School Publishing Co., 1930.

[2] Frank L. Clapp, *The Number Combinations: Their Relative Difficulty and the Frequency of Their Appearance in Text-Books*. Bureau of Educational Research, Bulletin No. 2. Madison, Wisconsin: University of Wisconsin, 1924.

[3] John Guy Fowlkes, "A Report of a Controlled Study of the Learning of Multiplication by Third-Grade Children," *Journal of Educational Research*, XV (March, 1927), 181–89.

number experiences. (The evidence for this statement will be presented later.)

3. The difficulties, as ascertained, cannot be viewed as *learning* difficulties but must be regarded as semi-persistent difficulties under haphazard instruction. (The pupils were located in Grades IV–VIII and had supposedly passed the stage of initial instruction and learning.)

The studies of Fowlkes and of Norem and Knight are similar in that they represent attacks on the initial learning difficulties of the one hundred multiplication facts. The pupils concerned were beginning the study of multiplication (third grade) and the amounts of practice on each of the one hundred facts were known and controlled in the experimentation. These facts add greatly to the significance of these two investigations. At the same time, it must be admitted that the number of pupils studied (thirty-one by Fowlkes and twenty-five by Norem and Knight) are not so large as might be wished. Clapp used 6,223 pupils in determining the difficulties he reported, all pupils being in Grades IV–VIII. These differences leave us somewhat "between the devil and the deep sea" in deciding on the credence to be placed in results so greatly at variance. However, in view of evidence to be brought forward later, especially with reference to the differences between initial learning difficulties and final difficulties, the question of numbers may well be relegated to a minor rôle, desirable as are large numbers in most types of experimentation. The numbers used by Fowlkes and by Norem and Knight are admittedly small; on the other hand, the numbers employed by Clapp are uneconomically large in view of the lack of adequate experimental controls. The reader, in deciding which type of study merits the larger credence, will reflect something of his temperament and training. After all, the main value of these three studies may not reside in their agreement or lack of agreement but rather in the distinction between the *learning* and the *ultimate* difficulties of the combinations. More will be said on this point later.

The present comparisons.—The following discussion adds nothing by way of experimental evidence to the three studies in point. The hope is that it will clarify certain of the issues. As a working basis, the three sets of findings are presented in Table I. This table is read

as follows: (1) The figures at the top are multiplicands; those at the left are multipliers. (2) The upper left-hand cell is concerned with

TABLE I

DIFFICULTY RANKINGS OF THE ONE HUNDRED MULTIPLICATION COMBINATIONS ACCORDING TO THE INVESTIGATIONS OF NOREM AND KNIGHT, CLAPP, AND FOWLKES

MULTIPLICANDS

MULTIPLIERS		0	1	2	3	4	5	6	7	8	9
	0	(N) 8	54	30	12	46	25	44	42	13	29
		(C) 1	97	94	88	93	99	91	98	95	86
		(F) 1	18	22	25	30	23	21	14	9	15
	1	(N) 34	43	26	6	15	19	20	23	1	7
		(C) 82	72	39	4	6	10	11	2	15	31
		(F) 56	10	44	24	31	19	13	16	8	17
M	2	(N) 24	28	27	39	41	18	9	35	31	47
		(C) 92	12	9	24	45	5	37	25	7	13
U		(F) 49	5	38	28	36	42	26	39	27	29
L	3	(N) 36	22	32	40	59	49	72	63	78	84
		(C) 85	17	18	28	46	33	36	54	59	56
T		(F) 54	12	20	41	59	40	50	45	52	63
I	4	(N) 11	10	45	67	70	64	82	91	96	95
		(C) 96	23	44	30	22	47	58	73	60	74
P		(F) 61	6	33	47	76	55	71	75	70	87
L	5	(N) 14	5	52	56	55	58	81	66	79	89
		(C) 83	3	21	43	14	29	62	53	57	52
I		(F) 62	7	37	48	64	67	78	79	57	81
E	6	(N) 51	4	37	61	62	60	75	92	77	100
		(C) 87	16	34	41	40	38	42	61	76	79
R		(F) 51	2	32	77	83	65	95	92	97	100
S	7	(N) 21	17	50	53	76	90	98	93	99	94
		(C) 100	20	26	50	69	48	68	55	77	78
		(F) 53	3	34	66	84	73	80	90	99	94
	8	(N) 33	16	48	71	69	86	97	83	88	73
		(C) 89	32	19	35	65	66	75	81	67	71
		(F) 58	11	43	69	85	68	91	98	88	93
	9	(N) 3	2	38	65	80	74	85	87	68	57
		(C) 90	27	8	63	70	51	80	84	64	49
		(F) 60	4	46	72	89	74	96	86	82	35

the combination 0×0. The upper figure in that cell is the Norem and Knight difficulty, the next is the Clapp, and the third is the

Fowlkes. Cell 1, thus defined, reads: "0×0 ranks eighth in difficulty according to Norem and Knight, first according to Clapp, and first according to Fowlkes." "First," as used here, means easiest and 100 means most difficult.

The degree of agreement among the three studies may be stated roughly by means of the correlations of the three sets of rank orders. These are: Norem and Knight with Clapp, 0.34;[1] Norem and Knight with Fowlkes, 0.83; Fowlkes with Clapp, 0.42. The results obtained by Clapp are, therefore, quite at variance with the results of the other two studies, which agree to the extent represented by a correlation of 0.83. Correlations of 0.34 and 0.42 are of relatively little value in demonstrating agreement. The agreement of Fowlkes and Norem and Knight, although not particularly close, is probably sufficient to establish the following fact: The difficulties which the one hundred multiplication combinations present during the stage of initial learning are quite different from the final difficulties at the end of instruction.

In the reading of the foregoing statement, it must be recalled that the studies of Fowlkes and of Norem and Knight were based on initial teaching and that Clapp's study deals with difficulties after one to five years of study.

Reference to Table I will show that the greatest disagreement among the three studies arises in the zero combinations, of which there are nineteen. Table II presents these facts in more convenient form. From this table it is seen that, with the exception of 0×0, the Clapp study places all the zero combinations in the most difficult quarter of the one hundred facts. Table III gives a summary of the zero situation.

The search for the reason why the zero combinations should appear difficult is interesting. With the exception of the combinations of which 1 is a factor, the zero combinations should be the easiest to rationalize; that is, general rules of a simple sort can be given to cover the 0's and the 1's. In the case of the other combinations gen-

[1] Norem and Knight give this figure as 0.32, but the writer differed slightly in the result, possibly because of the fact that present figures are rho's corrected to approximate Pearson product-moment coefficients. The difference is unimportant. Norem and Knight's Table VIII contains a misprint for 1×1 which should read 43, not 42.

eralization is probably too difficult to be attempted with third- or fourth-grade pupils. Why then should the issue of zero difficulties ever have arisen?

TABLE II

RELATIVE DIFFICULTY OF THE NINETEEN ZERO COMBINATIONS ACCORDING TO THE THREE STUDIES

COMBINATION	NOREM-KNIGHT RANK	CLAPP RANK	FOWLKES RANK	DIFFERENCE		
				Between Norem-Knight and Clapp	Between Clapp and Fowlkes	Between Norem-Knight and Fowlkes
0×0	8	1	1	7	0	7
0×1	54	97	18	43	79	36
0×2	30	94	22	64	72	8
0×3	12	88	25	76	63	13
0×4	46	93	30	47	63	16
0×5	25	99	23	74	76	2
0×6	44	91	21	47	70	23
0×7	42	98	14	56	84	28
0×8	13	95	9	82	86	4
0×9	29	86	15	57	71	14
1×0	34	82	56	48	26	22
2×0	24	92	49	68	43	25
3×0	36	85	54	49	31	18
4×0	11	96	61	85	35	50
5×0	14	83	62	69	21	48
6×0	51	87	51	36	36	0
7×0	21	100	53	79	47	32
8×0	33	89	58	56	31	25
9×0	3	90	60	87	30	57
Total				1,130	964	428
Average				59.5	50.7	22.5

TABLE III

NUMBER OF ZERO COMBINATIONS APPEARING IN EACH QUARTER OF DIFFICULTY IN THE THREE STUDIES

Study	Easiest Quarter	Second Quarter	Third Quarter	Hardest Quarter
Norem and Knight	9	8	2	0
Clapp	1	0	0	18
Fowlkes	9	2	8	0

Clapp, in his analyses of the textbooks studied by his experimental subjects, has shown that 0 in multiplication occurs but about half as often as do 1, 2, and 3. It ranks with 7, 8, and 9 in frequency. This

statement refers, of course, to the two older, and at present little-used, books which were in the hands of the pupils tested by Clapp. The studies of Norem and Knight and of Fowlkes show clearly that, when zero combinations are practiced as often as the combinations of the other digits, the zero difficulties are nonexistent. In fact, zero combinations are relatively easy.

The foregoing discussion has served to establish two probable conclusions: (1) that initial learning difficulties must not be confused with difficulties found to persist after some years of instruction and (2) that the so-called zero difficulty is principally an artifact of a policy of neglect in older textbooks. *The important thing is for the reader to recognize the untrustworthy character of the results of any attempt to utilize the data of Clapp as a detailed guide in the construction of drill or textbook materials.* Attention is again called to the fact that the 6,223 pupils entering into Clapp's order of difficulties do not represent typical pupils today. Modern textbooks do not slight the zero difficulties, for example. Likewise, they do not pile up the practice on 1, 2, and 3 as a multiplier to the relative neglect of 7, 8, and 9, which, by common repute, have been considered relatively more difficult.[1]

Clapp himself has called emphatic attention (page 107) to the fact that the correlation of his order of difficulties with the frequency of appearance of the combinations in the textbooks studied by his six thousand pupils was −0.38 in the case of Textbook A and −0.46 in the case of Textbook B. This correlation between difficulty and amount of (reputed) practice is indeed somewhat higher than the agreement between Clapp and the other two investigators.

Clapp's Tables 34 and 35 (pages 94–95) show the illogical nature of the previous number experiences of the six thousand pupils studied. When the one hundred combinations are divided into four quadrants as shown by the heavy lines in Table I, the total practice afforded by Textbooks A and B of Clapp's study is as given in Table IV. Nothing could be more illogical than to give two and one-half times as much practice to the reputedly *easiest* quadrant as to the *reputedly* hardest quadrant, the terms "easiest" and "hardest" re-

[1] See Table 37 on p. 99 of Clapp's monograph for evidence on this point.

ferring here to averages of quadrant difficulties with full recognition that the exceptions may be almost as numerous as the cases coming under the rule. (Clapp found a correlation of 0.61 between his order of difficulty and size of product; Norem and Knight obtained 0.86.) Is it conceivable, with the cards stacked in the manner just shown, that a great deal of truth can arise from studies of pupils whose previous multiplication experience is unknown except to the extent ascertainable by an analysis of the textbooks placed in their hands?

TABLE IV

PRACTICE AFFORDED ON MULTIPLICATION COMBINATIONS IN TEXTBOOKS A AND B OF CLAPP'S STUDY

Textbook	Number of Times Combination Occurs	Percentage of Times Combination Occurs	Textbook	Number of Times Combination Occurs	Percentage of Times Combination Occurs
	Quadrant I			Quadrant II	
A	9,920	40	A	5,000	20
B	11,461	39	B	6,465	22
Total	21,381		Total	11,465	
	Quadrant III			Quadrant IV	
A	5,697	23	A	4,087	17
B	7,127	24	B	4,551	15
Total	12,824		Total	8,638	

This question is especially pertinent when such an analysis shows that these textbooks were constructed quite without reference to any psychological considerations of adequate drill. Add to this situation the fact that other independent studies under much more rigid experimental controls yield almost totally different results. In the light of such facts, are we ready to accept any one investigation, as some textbook writers and publishers advertise they are doing, as a basis for "scientific" textbook construction?

The writer, for one, does not hesitate to assert that good judgment based on the logic of the situation is fully as safe a guide as any study yet published. At the same time, he wishes to be understood as

holding that the technique of Fowlkes and of Norem and Knight would yield the valid answer if their studies had been extended to a larger sampling of pupils, teachers, and methods. He is also equally certain that no amount of experimentation with pupils of unknown antecedents (in multiplication) will ever yield the correct ranks of the difficulties of the one hundred multiplication facts.

Because of space considerations the present analysis has been confined to multiplication. Knight and Behrens[1] have shown through controlled laboratory experimentation that Clapp's difficulty values for addition and subtraction combinations do not hold for initial *learning* difficulties any more closely than it has been shown they hold for multiplication.

A certain amount of disagreement of rank orders is to be expected. Order of classroom presentation is probably a factor. If 3×4 precedes 4×3, the former may be mastered the better, and conversely. The reader's attention is invited to the Knight and Behrens monograph for a discussion of this and several related issues.

Conclusions.—About the only facts which the three studies compared may be held to have established are:

1. Learning difficulties are very different from final difficulties (correlations of 0.30 to 0.40 between two types of investigation).

2. There is a rough agreement of the order of difficulties in learning in the Fowlkes and the Norem and Knight studies. (The correlation of 0.83 is unquestionably diluted by the small numbers employed.)

3. There is considerable correlation of difficulty with the size of the product (0.61 in Clapp's study and 0.86 in Norem and Knight).

4. Clapp's ranking of difficulty agrees somewhat with the distribution of practice in the textbooks studied by his pupils, but agreements with other studies are slight. (The correlations of Clapp's order with that in the other two studies are 0.34 and 0.42; the correlations of the order with the amount of practice in the textbooks are −0.38 and −0.46.)

[1] Frederic B. Knight and Minnie S. Behrens, *The Learning of the 100 Addition Combinations and the 100 Subtraction Combinations.* New York: Longmans, Green & Co., 1928.

5. Some such sensible distribution of practice as the following is probably as close to the truth as we can come at present.

Quadrant I	Quadrant II
20 per cent	25 per cent
Quadrant III	**Quadrant IV**
25 per cent	30 per cent

This arrangement represents a compromise between a logical position and the somewhat contradictory experimental findings now available. It assumes that difficulty is correlated with size of *product* in multiplication combinations. Some evidence has been presented in support of size of product as a determinant of learning difficulty. The sums of the Norem-Knight ranks in Table I taken by quadrants are as follows:

Quadrant I	Quadrant II
Sum = 825	Sum = 1,137
Percentage = 16.3	Percentage = 22.5
Quadrant III	**Quadrant IV**
Sum = 1,039	Sum = 2,049
Percentage = 20.6	Percentage = 40.6

A similar procedure for the Fowlkes' entries in Table I gives:

Quadrant I	Quadrant II
Sum = 826	Sum = 926
Percentage = 16.4	Percentage = 18.3
Quadrant III	**Quadrant IV**
Sum = 1,240	Sum = 2,058
Percentage = 24.6	Percentage = 40.8

Quadrants I and IV give almost identical results for the orders of difficulty in these two studies. The other two quadrants agree less well.

6. The so-called zero difficulties arise from neglect; they disappear under controlled instruction.

USE AND ABUSE OF THE GRADE CURVE

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Writing in the *Elementary School Journal* in June, 1931, I. N. Madsen disposes of the grade curve in the following paragraph.

> The next question relates to the use of the normal curve as a basis for marking. The answer is that the normal curve should be used as a guide in distributing marks. Research has repeatedly shown that, when fairly large groups are accurately measured, the resulting frequency tables conform to the normal frequency distribution. It follows that, unless all teachers use the normal curve as a guide in their distribution of marks, their marks will not be comparable. Thus, a mark of B in one class might be no better than a C or even a D in another. The writer would emphasize that the teacher should not adhere slavishly to this device and attempt to make the distribution of marks conform rigidly in each and every class. In the long run, however, she should expect a fairly close conformity.[1]

Professor Madsen's conclusion that the use of the normal curve will cause marks to be comparable seems to be unjustified. Following is an authentic instance in contradiction: The Stanford Achievement Test, Form B, was administered to ten elementary schools of a system. In seventh-grade arithmetic the lowest ranking school attained a median score of 208, one point higher than the seventh-grade norm of 207, while the highest ranking school scored 244, higher than the eighth-grade norm of 228. If the respective teachers are guided by the normal curve in marking the two classes, the median pupil in each class will receive a mark of C. Yet the test gives evidence that one child is superior to the other by more than a year. Standardized tests disclose that such differences in the achievement levels of classes are not exceptional.

As Professor Madsen points out, it is a demonstrated fact that, in the large, measurements of scholastic achievement yield a distribution which approximately conforms to the normal frequency distribution. However, there is no law of nature which makes this condition inevitable. It is merely a statistical fact revealing one of

[1] I. N. Madsen, "To Mark or Not To Mark?" *Elementary School Journal*, XXXI (June, 1931), 752.

the aspects of contemporary education. We may not assume that, because it is so, it is therefore proper and desirable. Perhaps, rightly interpreted, it really measures the inadequacy of our system.

The normal frequency curve corresponds to the normal probability curve, which is derived from the study of the *unselected* outcomes of *chance* factors. Education is only in part a matter of chance. Individual variability might, if not interfered with, be regarded as determined and distributed according to the laws of chance. Let us assume that the influence of this factor is in favor of a normal frequency distribution of educational achievement.

On the other hand, the normal frequency pattern will be interfered with chiefly by selection and by remedial teaching. Scarcely any schoolroom even approximates a true cross-section of the general population. A part of the selection is automatic. The inferior individuals are eliminated in increasing numbers in progressively higher grades. Considerable selection is also brought about through retardation, partially compensated for by the acceleration of some superior pupils. The constituency of a school is likely to be somewhat homogeneous with regard to heredity, ambition, cultural advantages, and nutrition. Some schools, owing to inherent handicaps of this nature, can never equal the scholastic records of others more fortunately situated. Selection is also carried out in a most thoroughgoing way by such administrative expedients as homogeneous grouping and differentiated curriculums.

Remedial teaching is assuming an increasingly prominent rôle in educational practice. It is hardly an exaggeration to say that the excellent teacher, wherever found, applies his trained intelligence to the utmost, exerts all the arts at his command, and employs the resources of science to the end that the learning difficulties of each child may be correctly diagnosed and, if possible, removed. A great many poor pupils are being rehabilitated. The teaching profession has no more right to adopt a fatalistic attitude toward poor scholarship than the medical profession toward the death-rate. Far from feeling an obligation to *maintain* the average death-rate of the nation in each subdivision thereof, any state or local health officer justly prides himself on a death-rate that is well under the average.

Let us consider some further complications of the grade curve.

In schools in which the Winnetka technique is employed in teaching a fundamental skill, such as number, each pupil proceeds to the next unit as soon as the required degree of mastery is attained. To simplify the explanation, we may say that, theoretically, the time spent under the traditional plan is constant for a given group of pupils while achievement is variable. Theoretically, this procedure is reversed under the Winnetka plan; achievement is here held constant while the time is variable. Under the latter conditions, what happens to the grade curve? There is *no* distribution, for, theoretically, all pupils achieve precisely the same. In this case we obtain a "time curve" resembling the familiar grade curve.

The trouble is that neither case is so simple in practice as in theory. Some combination of the two methods may be practiced, and then it is a wise teacher who knows his constants and variables! A further illustration, admittedly far-fetched, is not without point. Suppose a teacher requires, under penalty, that all pupils of a group master an assigned unit to an equal degree of perfection within a directed-study period. Theoretically, both time and achievement are now constants, but a "perspiration curve" is discovered, since the variable factor is the intensity of effort within a given time.

It is also pertinent to inquire whether achievement in all grades and subjects conforms to the same type of curve. The writer knows of no conclusive evidence on this point. For instance, how will first-grade reading compare with reading in the sixth grade, or seventh-grade spelling with seventh-grade history? In the university how will a class in English composition (required of all Freshmen) compare with a class in Senior chemistry composed entirely of students majoring in the department?

In conclusion, it appears unsafe to rely to any extent on a formula as a substitute for objective measurement. Standardized achievement tests must be relied on to make teachers' marks comparable. Teachers should use the curve as a basis for comparison but not as a Procrustean bed. They should be "guided" by the normal curve no farther than a state or city health officer is "guided" by the average death-rate in the United States. Further investigation is needed to determine the distribution of achievement in specific grades and subjects and under specific conditions.

A MARYLAND SUPERVISOR TALKS SHOP

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Not long ago a mother came to me and said: "Just why does our state have supervisors? What do you do? It seems an added expense for county and state, and the children would learn anyhow. You know some children learn in spite of teachers, not because of them, to say nothing of supervisors, and some learn slowly regardless of the efforts of teachers and supervisors. It seems to me to be rather a futile proposition. Now mind, I mean no offense to you."

"Of course you don't. I understand thoroughly and will grant that a great deal you say is true. However, if you really want some information in answer to your question, I shall be glad to discuss the values of supervision with you."

"By all means do, if you feel you have time. It's a matter about which I've wondered and about which a great many of my friends have asked. We have great faith in our county and state educational leaders and feel that the program they plan is best for our children. It's just a case of not knowing the why and wherefore of what you call 'modern education and supervision.' "

"Somehow during the past few years it has become somewhat generally known that education does not consist in the three R's alone. Those skills function in the life of the child and adult, to be sure; but, mostly, people do not judge you as a worth-while member of a group by how skilful you are in these fundamentals."

"That is true, but how are we judged? I hadn't thought of that."

"First of all, children function in a group just as do adults. That is, schools aim not only to get children ready to live as citizens in a community but to have them live in a miniature community as they grow—sharing, working, thinking, leading, following as the situation demands."

"Then you mean the way a child or adult adapts himself to a situation is an index to his education."

"Exactly so! Folks, big or little, are judged by the way they adjust themselves to new situations, by the things they like or dislike. That is, we are judged as worth-while members in a group if we intelligently adjust ourselves to new situations and have desirable attitudes and appreciations."

"Can schools help children adjust themselves to new situations and form these desirable appreciations and attitudes?"

"They are the major problems of the school—to see that these appreciations and attitudes are formed, as well as the habits of reacting desirably in a group. Knowledge of subjects is only a means of developing these finer and bigger things. The big aim for which the schools are striving for every child is the development of a well-rounded personality. This personality grows slowly. The teacher must guide the child in the use of his experiences, see that opportunities are given for children to think, form opinions, develop appreciations and attitudes."

"Then, I take it, the supervisor must help the teacher to see opportunities of developing these appreciations, attitudes, and ways of reacting in a group. They're in a group already. I see. Go on."

"I think I shall go back now and tell you some of the things I've been doing in the past month. It would help to clarify what I've been trying to say to you.

"About a week ago I visited a small school in which was a fairly progressive but inexperienced teacher. She and the children were discussing the foods of the pastoral people. She had a wonderful opportunity to show the influence environmental factors and climatic conditions had on the foods they ate; to show that early pastoral people used the things at hand for their implements and tools, and to teach something about the evolution of processes in the preparation of foods. She might have developed an appreciation of the fact that our tasty and attractive meals are the result of a long period of time and change, growing from simple to more complex, and that people who have lived before us are more responsible for the splendid complex life we live than we ourselves are. It's a matter of the good use of the accumulated experiences of the race. Instead, because of her inexperience and failure to see the importance of developing these attitudes and appreciations, the little teacher said, 'Yes, it was

queer food. Ugh! We wouldn't eat it!' This teacher was unconsciously building an attitude of intolerance, a feeling of disgust for simple beginnings. She needed a new point of view; she needed some reconstruction of her philosophy of education. Then, too, in the same lesson, she did not sense the fact that, while her children were talking glibly, they really didn't know what it was all about. She was unconsciously helping them to be superficial. That is just one example of a case in which a supervisor is needed to reconstruct in teachers modern points of view in education."

"Do you ever teach for your teachers to show them how things might be done?"

"During the past month I have taught as many as ten lessons. Each was for a different reason. I taught one to show the teacher how to summarize a discussion so that the main ideas developed during the lesson registered or, in other words, clinched. One little group did not seem to be able to attend to their reading and phrase drill. I attempted to show the teacher how each child might respond mentally to every phrase upon which there was drill and how working with smaller units of reading material would give more children an opportunity to participate orally—hence, greater interest. At another time I showed a teacher how to take a phrase from the content of a suitable song and drill on the music.

"Often I sit down with a teacher and help her plan a series of lessons. Sometimes I teach the children in order to make concrete for the teacher the educational principles that the lesson should demonstrate, to show good teaching procedure, to show varieties of ways of handling a class, or to show ways of appealing to children's interests, to show good questioning, to secure more worth-while participation from the children. Those are a few ways of improving instruction through teaching. The purpose of such teaching is always determined by the needs of a particular teacher or a particular group of children."

"I suppose seeing a thing done by a supervisor is more helpful to a teacher than just hearing about it. 'Seeing's believing,' they say."

"Yes, I always try to discuss the value of a given procedure and to suggest other ways of doing the same thing provided the basic principles are there. You know it was Kipling who said, 'There are

sixty different ways to write a tribal lay, and every one of them is right.'

"I had a very interesting study this past month with regard to the children who may not reach the goals for the grade and, hence, not be promoted. Would you be interested?"

"Yes, I certainly would. My son, Bruce, has been working very hard, but he doesn't seem to feel sure he'll pass to the next grade. I do think it's a good time now to begin to think about those who may fail. In June it's too late to do anything. What are you doing?"

"Early in March the teachers were asked to send in a list of the children who apparently were not doing the quality of work that met the requirements for their grade. After the lists were sent in, I held meetings to discuss two things: the reasons for the probable failure of these children and measures to improve their work and prevent failures. The teachers gave many reasons why they felt certain children were failing and were enthusiastic about trying to save as many as possible from failing."

"Do you mind if I ask what the teachers said were the causes of poor work?"

"No indeed, I would have mentioned these reasons had I not felt that maybe this subject, while interesting to me, might tire you."

"It certainly won't. There's Bruce—well, do go on—and I am anxious to know what will be done to save some from failing, too."

"The teachers and I discussed each child on the list. Then we listed, as general reasons for failure, poor attendance, lack of previous fundamental knowledge, lack of experiences, mental immaturity, under-nourishment, physical defects, and late entrance. The ways of handling these children to prevent some from failing varies in detail with every teacher, but every teacher regrouped the children so as to provide special and individual work for these pupils. Every child in danger of failing is to be given a mental test to see what he is able to do. He is also to be given some tests in reading and arithmetic to discover his best accomplishment in these two fundamental subjects. At a little later date he will again be given tests in arithmetic and reading to see if he is improving in those subjects. Each child has some extra *special* work to do that is easy enough for him to do and to enjoy doing. Each teacher has made a point of getting in

touch with the parents of each child to secure co-operation and help. The success or failure of a child at school is a joint responsibility of the child himself, the parents, teachers, supervisor, and administrative board.

"One group of teachers thought it would be a very fine thing if we studied each child and kept a record of his physical, mental, and social status. These teachers have prepared an individual record card which tells the child's age, weight, height, accomplishment on school tests, home activities, days of attendance, causes for absences, general health conditions, attitude toward classmates and teachers, study habits, and citizenship habits. This record sheet is being used for every child in danger of failing."

"Have you noticed any improvement yet?"

"Only yesterday a teacher said that four of the eleven children reported by her had shown considerable improvement and would probably reach the requirements and pass to the next grade. Another teacher remarked on the change of attitude toward work of some children in her room."

"I did not know that you could keep in close touch with individual children as you seem to be able to do. Someone said you talked at the mothers' club one evening on how to help children study at home. It seems to me that, if we who are parents know a few things to do or not to do when our children are studying, we could help them meet the goals for their grade. Would you mind telling a few of the helps you suggested? Maybe I could help Bruce a bit."

"First, the parent must find out what the child needs to know about a particular assignment. What part of the assignment is easy? What part is difficult? Second, children need to be helped to help themselves. When a child says, 'Mother, six eights?' the mother usually replies, 'Forty-eight.' Did she help him learn 'six eights' or did she only supply a temporary need? If she stopped there, certainly she supplied only a temporary need, but, if she said, 'Better mark down the whole thing, son, six eights are forty-eight, and put it on a little card. Now don't be surprised if I ask you four or five times tonight for the answer.' Too many times the child says, 'Dad, what does "advanced" mean?' Usually he is supplied with an answer. Surely it would be better to say, 'I wonder what the dictionary gives.

How was the word used in your book? How else could it be used?' That's what I mean by helping children to help themselves.

"There are other ways in which parents can help their children. 'Here, wouldn't these newspaper pictures help in your study of Norway?' 'You may find something in the *National Geographic* about Norway.' 'Your aunt has an encyclopedia.' "

"Yes, you know most of us could help that way. It gives the children a wider knowledge to find data on the same thing in many places. Then, too, it is good for children to know that their parents are interested in their affairs."

"We teachers discussed a few things like helping children to evaluate their work, selecting errors for improvement, and seeing that a child spends as much time thinking about what he reads as he spends time in reading. When he is studying history or geography at home, it would be well to have a child read the entire assignment, re-read the important parts, discuss it with you, or organize it in an outline."

"Those are practical helps. I believe that I see a great many ways in which I can help Bruce.

"You haven't said a lot about your own work as a supervisor, but I can see you are in the background of everything. How many schools do you visit in a day or in a month?"

"In the last month I've made thirty visits to schools and have spent three days in my office planning and recording work. Sometimes the recording, filing, and planning take a great deal of my extra time. In addition to that I have done considerable professional reading. I have also made a six-page test on Maryland history and geography, have taken pictures of study and work groups, have collected descriptions of activities that were outstandingly well done, and have edited or rewritten such descriptions for a bulletin on the social studies which the state department of education is revising."

"This work takes more time and thought than most of us realize. However, I can see the many-sided task that supervising really is. I can appreciate something of its scope."

"If you can see that and its value to children, then I'm satisfied. There is much more that might be said; we have barely touched the subject of supervision."

"It's vastly interesting. Can we talk some more later?"

"Yes indeed! We teachers all delight in talking shop."

Educational Writings

REVIEWS AND BOOK NOTES

Problems of platoon-school organization.—About fifty years ago the graded elementary school, which had been in the process of development for nearly a half-century, was proving most unsatisfactory and was being challenged on every side. Many schemes and plans for reorganization of these schools were projected. Most of the suggested plans were to become known and the principles involved were to become differentiated in educational literature by the name of the school system in which they were first introduced. Some, although given much publicity, died early deaths, while others became the basis for a more flexible and more desirable type of school. It may be stated that these plans, taken as a whole, largely resulted in the embodiment of newer ideas into the existing organization rather than in a basal reorganization of the schools of the system concerned.

On the other hand, the Gary plan of school organization, which had its inception in 1900 in the schools in Bluffton, Indiana, and which later became more commonly known by the name "platoon-school organization," was fundamentally a new organization constructed on principles different from those that had been applied in the creation of the graded school. The Gary plan attracted much attention and has had as marked an influence on elementary-school organization as any of the reorganization schemes fostered since the graded school was devised.

The general interest in this new type of school organization has resulted during the past fifteen years in a large number of publications that treated the particular or special school activities as they were met with in individual school systems operating platoon schools. To treat the problems of the platoon-school organization in a more general and comprehensive manner, a book[1] has come from the press which is planned as a textbook for the use of students and others who are interested in the platoon type of school organization.

To accomplish this end, the author fittingly devotes the first three chapters of his book to the history of the movement, the philosophical background in which the movement had its origin, and the story of the leaders responsible for the movement. In the remainder of the book the author endeavors to select for special and comprehensive treatment those characteristics of elementary-

[1] Roscoe David Case, *The Platoon School in America.* Stanford University, California: Stanford University Press, 1931. Pp. xxiv+284. $3.00.

school organization and administration that are significantly peculiar to platoon schools. Thus, in addition to an extended chapter on the school plant, in which many of the problems of design and building planning are analyzed, appropriate discussions follow in chapter form on the teaching staff, the home room, the work in physical education, the library, the auditorium, the school programs, and the correlation of these programs. The chapters that treat of the characteristics unique to platoon schools, such as the home room, the auditorium, and the school program, are exceptionally well done and bring together in very useful form materials that should be welcomed by both teachers and principals. As one reads the book, one notes that the author is an ardent advocate of the platoon school; hence, the manner of presentation at times leaves one with the thought that the work is somewhat propagandistic. The last chapter of the book, entitled "The National Platoon School Association," tends slightly to augment this feeling.

The administrative problems characteristic of a platoon school are well covered, and the treatment offers to administrators many helpful suggestions with regard to the management of schools of this type. Taken as a whole, the discussions of the various topics, except those that are primarily unique to platoon schools, are general in scope, and many statements made will apply equally well to the modern elementary school however organized. This statement is not necessarily a criticism of the book; rather it indicates the extent to which the best in organization is accepted by school executives and applied in the schools wherever it will serve.

In introducing the chapter on the "Advantages of the Platoon Plan," the author remarks: "Any statement of the advantages of the platoon plan of organization over the traditional plan necessarily amounts to a comparison of an ideal platoon-school situation with the situation commonly found in non-platoon–school cities" (p. 244). Why not make comparisons between the best platoon schools and the best schools not "platooned"?

Obviously the author is compelled to use those data concerning platoon schools that have been made available. In spite of the number of years that platoon schools have been in operation, it is surprising to note the limited amount of factual materials which appear suitable for analysis, for comparison, and for proof of the advantages offered by platoon schools over the advantages offered by the schools of the traditional type that have followed modern developments in education.

The book presents a very worth-while account of the development of the platoon school and gives the reader a useful summarization of valuable information regarding the organization of the work within these schools. The manner of treatment should make the work an exceptionally good textbook, which should find a place among the references in classes in general administration and classes in elementary-school organization.

FRED ENGELHARDT

UNIVERSITY OF MINNESOTA

Sixteenth-century educators.—At first thought one might question the need of another book dealing with the writings of the Protestant leaders in the period of the so-called "Reformation." Students of history are realizing more than ever before the significance of this phase of the Renaissance, a phase which checked suddenly and effectually the free thought that had begun to stimulate the scholars of northern Europe and yet which did much to hasten the development of schools for the masses among both the protesters and those who remained loyal to the "Mother Church." Many writers have listed and analyzed the more important educational contributions of the sixteenth century, but it is not sufficient to read about the men of the time, the systems of education they established, and the patterns they set up for later educators to elaborate; the student needs access to the very words they wrote and spoke.

Professor Eby has rendered a real service in preparing a convenient little source book[1] which presents the views of a number of sixteenth-century educators. He has selected with discrimination the chief educators whose work was done in the thick of the battle while all the original parties to the great schism were still living and fighting. In a book that can be read in an evening he has included Martin Luther's more positive utterances on education, brief selections from Philipp Melanchthon and Johann Bugenhagen, and somewhat more extended selections from the writings of John Calvin and John Knox. Cuts of Luther, Calvin, and Knox are included in the volume.

As is to be expected, half the book is devoted to Luther. Ten pages are given to his life, including a brief analysis of his changing views in the second stage of the Reformation. The remainder of the space is devoted to his writings, familiar translations being used. Besides the letter to the mayors and aldermen and the sermon on the duty of sending children to school, which are readily available to students of the history of education, many of Luther's less widely known but significant utterances are included, among which are his criticism of monastic teaching, his comments on parental duties, catechisms, and the educational value of music. The editor makes no attempt to establish Luther's place in the life of his times but lets the reformer speak for himself.

To Luther's faithful co-laborers in the field of education, Melanchthon and Bugenhagen, Professor Eby devotes only twenty-five or thirty pages, nearly all of which is source material. Henry Barnard's translations of Melanchthon's celebrated school plan and of Bugenhagen's school ordinances are included.

The materials selected from the writings of John Calvin and John Knox are, for the most part, seldom found in the readily available source books bearing on this period. They should be useful to students of history of education in America who are eager to trace back to its foundations in the Calvinistic doctrine the Puritanic attitude of the pioneers in New England and New Amsterdam. The book closes with a brief comment on the educational influence

[1] Frederick Eby, *Early Protestant Educators:* The Educational Writings of Martin Luther, John Calvin, and Other Leaders of Protestant Thought. New York: McGraw-Hill Book Co., Inc., 1931. Pp. xiv+312. $2.25.

of the Anabaptists and a selection from a letter of the "Brotherly Union of Certain Believing Baptized Children of God."

The outstanding feature of the book is the wisely chosen source material, to which 85 per cent of the book is devoted. Although nearly every selection included in the volume can be found in other reference books in many libraries, no other single book contains so many pertinent selections from the writings of that small group of men who were instrumental in changing the direction of educational thought in the sixteenth century.

FOREST C. ENSIGN

UNIVERSITY OF IOWA

Franklin on education.—In the five chapters of a compact volume[1]—one of a series of "classics" edited by Professor E. H. Reisner—are collected and reprinted with sufficient faithfulness the more important occasional papers of Franklin on education. Happily, one does not find either the squeamish omissions or the unhistorical additions which deface D. E. Cloyd's little work on the same subject. The most important of the papers deal with the Philadelphia Academy and include the "Idea of the English School," the "Constitutions of the Public Academy in the City of Philadelphia," and the "Observations Relative to the Intentions of the Original Founders of the Academy." The last of these is an extremely important historical and biographical document which has not previously received and (the reviewer thinks) does not here receive the attention that it merits.

Professor Woody has prefixed to the papers a good sketch of Franklin's life, in which he shows that the lack of educational opportunities in Franklin's youth, his early poverty, and his absorbing engagements in maturity made it impossible for him to secure any thorough educational discipline. It is to be remarked on the debit side of this sketch that, although Franklin may have corresponded in nine languages, he really knew only one—his native English. Even French, which was Franklin's second language, is no real exception to this statement. Of course, Franklin dabbled in many languages, but to call him a linguist is mere myth-making. Franklin was not a teacher, nor had he any new ideas on education. He read Locke, Milton, William Smith's *Mirania*, and several less-known writers and adopted and promulgated those *bourgeois* and practical views which were agreeable to the successful printer and business man and to his century. His educational views were *bourgeois* and practical and (perhaps one should say "therefore") not politically liberal. In his writings one seeks in vain for those ideas on education for liberty and for republican statesmanship which characterize the writings of many of his contemporaries, such as Priestley, Jefferson, Madison, and Rush.

On the educational matters with which he actually deals he is more narrow minded than in any other field that he touches. His estimate of the classics is

[1] *Educational Views of Benjamin Franklin.* Edited by Thomas Woody. New York: McGraw-Hill Book Co., Inc., 1931. Pp. xvi+270. $2.00.

well known; they are merely ornamental like the buttons on the sleeve of a man's coat. Of a liberal humanism he had no conception. This lack was largely the fault of the eighteenth century and not merely of Franklin himself. It is not so often recognized that his view of science was equally utilitarian. Science to Franklin meant "useful knowledge." For science as a system of nature, an intellectual structure, he cared no more than for humanism.

With these views Professor Woody must evidently disagree. He has prepared an excellent little book of a too placid *genre*. The reviewer's criticism of his performance is that it lacks criticism. Much that is useful and much that is interesting are to be learned from Franklin's writings on education; especially one may there learn that Franklin was an uncritical child of his century who attacked the errors of still older centuries without divining, as he so often did in other fields, the solutions of the centuries which were to follow.

H. G. Good

Ohio State University

Teaching drawing in the elementary school.—Art supervisors and teachers will receive with much pleasure a monograph by Jessie M. Todd[1] in which she gives her reasons for choosing drawing as the most important phase of all the art activities and discusses the method which she has developed for teaching it.

The basis for instruction in the method presented is the graphic vocabulary, which consists in type forms of figures, plants, animals, and objects. These drawings are symbols for the various forms needed in the art class. The key to the method is the important point "that the forms chosen as the basic figures to be memorized must be types out of which other forms can be made" (p. 21). As a consequence, the child is not held rigidly to these symbols but understands that he may use his own initiative in developing his ideas in a creative way. The method is arranged in such logical form that teachers of little experience should be able to follow it and secure splendid results. It will not hamper the child in original work but will give him a background for the mechanics of drawing. Consequently, he may attend wholly to the representation of the idea which he wishes to develop.

These forms, developed from a close study of the way a little child draws, should be memorized by the child to assist him in the interpretation of his ideas. A discussion of the use of the graphic vocabulary outlines the work of the first six grades. Definite instruction in the vocabulary may be begun in the first grade. The lessons are taught by the direct line-by-line method, which assures a definite knowledge of the correct form of the figure or object. Each child may proceed as rapidly as possible since a series of plates are provided for study. In order that mastery may be assured without loss of time, children who find problems difficult are given special attention, while those who have acquired

[1] Jessie M. Todd, *Drawing in the Elementary School.* Publications of the Laboratory Schools of the University of Chicago, No. 2. Chicago: Department of Education, University of Chicago, 1931. Pp. vi+60. $0.75.

the necessary efficiency are allowed to develop ideas of their own. More difficult type forms are added from grade to grade.

The author spends much time on the development of figure-drawing in the first six grades. This plan should be of great assistance to teachers of these grades since the interest of the child is centered in the activities of the people with whom he is associated. There is constant need for figure-drawing in all phases of art as well as in correlation with other subjects. These lessons in figures are so closely interwoven with lessons on animals, plants, and objects that the child learns many types which may be used when there is need for them.

The book is profusely illustrated with many drawings by children. An "exhibit of progress" shows drawings by the entire group from the second grade through the sixth. The author demonstrates in this way that the method of dictating typical forms does not inhibit original work by the average child. Drawings by children of superior ability show their reactions to the method.

Art teachers who have felt a real need for a method which will give the necessary guidance and produce independence in creative work will find many helpful, concrete suggestions in this book.

FLOSSIE KYSAR

SUPERVISOR OF ART, FORT WORTH, TEXAS

A book on reading for administrators.—School principals and superintendents have often expressed a desire for brief but illuminating discussions of the problems relating to various school subjects. A timely response to this demand has been made by Gates in a book on reading for public-school administrators.[1] The purpose of the volume is to present "in the briefest possible form, the outstanding features of what seem to the author to be the best methods and materials for teaching reading" (p. iii).

The content is organized around six topics: "Content of the Reading Course," "Characteristics and Requirements of Oral and Silent Reading," "The Character and Development of the Reading Vocabulary," "Phonics or No Phonics?" "Reading Methods in the Several Grades," and "Measurement, Diagnosis, Remedial Work, and Adjustment to Individual Differences." The discussions of these important phases of reading are pointed and helpful. In preparing a brief overview, Gates found it necessary to omit many details and much supporting evidence which are usually found in professional books for teachers. In this connection the problems of the lower grades have been considered far more thoroughly than those of the upper grades. It is hoped that this thoughtfully planned handbook will stimulate school officers to more intensive and continuous study of reading problems.

WILLIAM S. GRAY

[1] Arthur I. Gates, *Reading for Public School Administrators*. New York: Teachers College, Columbia University, 1931. Pp. vi+126.

Planning and conducting school festivals.—A recent monograph[1] discusses the festival as a means of utilizing the creative curricular activities of pupils in school celebrations of important holidays and seasons. The factors justifying the place of the festival in the program of a modern school are treated by Patty Smith Hill, the editor, in a thirteen-page introduction. The author first presents the problem of the elementary school in meeting the expectation of patrons with respect to programs for such special times as Christmas and May Day and proposes the school festival as an effective solution. Next, the suggestions made in the matters of costuming, securing scenery and properties, and providing the musical setting emphasize economy of time and expenditure. The remainder of the volume is devoted to detailed descriptions of festivals presented in the training school of a state teachers' college which were based on children's own stories and experiences, promotion of the spirit of international good will, legends, children's favorite stories, and historical material suggested by classroom activities.

The technique presented for developing the festival program is approximately that of the conventional problem-project. Descriptions of procedures are supplemented by six photographs. The bibliographies of references concerning costumes, literature, and music are comprehensive and should prove helpful to teachers and principals in the preparation of programs for assemblies and special events.

PAUL R. PIERCE

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Transfer of training in arithmetic.—Two decades ago educators vigorously argued whether training actually transferred from one field to another. Today it is generally conceded that transfer is a reality and that it takes place in some degree in most learning situations. The modern educator is beginning to center his attention on the problem of how beneficial transfer can be facilitated and how harmful transfer can be avoided.

In the subject of arithmetic the question of transfer is vital. In the Twenty-ninth Yearbook of the National Society for the Study of Education, F. B. Knight stresses the importance of transfer throughout his chapter on method. Which of Knight's "skills" in arithmetic and which of Brueckner's "types" of arithmetic examples represent clearly differentiated learning products will in the last analysis be solved only when experimentation has produced a greater body of information on what elements of learning can be made to transfer than is found in educational literature at the present time. A recent volume by Overman,[2] because of its experimental nature, is a valuable addition to the rapidly accumulating literature on the question: What factors influence transfer?

[1] Adelaide Linnell, *The School Festival.* New York: Charles Scribner's Sons, 1931. Pp. xxii+124.

[2] James Robert Overman, *An Experimental Study of Certain Factors Affecting Transfer of Training in Arithmetic.* Educational Psychology Monographs, No. 29. Baltimore: Warwick & York, Inc., 1931. Pp. viii+236. $3.12.

Overman's experiment may be summarized as follows: Four groups of second-grade children, each containing 112 pupils matched in sex, mental age, teachers' estimate of general ability, and score made on preliminary arithmetic tests, were taught the same types of arithmetic examples, each group of pupils by a different method. Before the experiment the pupils were taught ten addition and five subtraction combinations which included all the combinations necessary to solve the examples in the tests given, addition of columns of three and four numbers with sums less than ten, reading and writing of numbers of less than a thousand, and the understanding of place value to two places. During the experiment training was given in the addition of two numbers of two digits each; addition of three numbers of two digits each; and addition of a two-place, a two-place, and a one-place number in the order stated. Tests given during the experiment consisted of examples of the types (1) similar to those taught before the experiment, (2) similar to those taught during the experiment, and (3) unlike any which the children had been taught in school. The latter included two-place addition with four addends; three-place addition with two, three, and four addends; two- and three-place subtraction; and examples in addition and subtraction involving numbers with varying numbers of digits, such as the addition of a two-, a three-, and a one-place number. Several types of the examples in the tests were dictated to the pupils. Less than three-fourths of the children were also tested on examples involving carrying in addition.

As stated, each of the four groups of pupils was taught by a different method. Under Method A the pupils were merely shown how to perform the process. Under Method B the pupils were helped to form the generalization that the numbers must be written in such a way as to keep the right-hand column straight. Under Method C pupils rationalized addition by discussing the principle that only ones can be added to ones and tens to tens, but nothing was said about keeping the right-hand column straight. Under Method D pupils not only generalized by being helped to note that the right-hand column must be kept straight but rationalized that the latter principle must be true since ones were added to ones and tens to tens. The pupils under Method A served as a control group for testing the efficacy of Methods B, C, and D.

The experiment continued for fifteen days. On eight of these, tests were given, the same test series being given four times on the first and second, sixth and seventh, tenth and eleventh, and fourteenth and fifteenth days, respectively. The other seven days were devoted to training the children in examples of the types indicated in the preceding paragraphs.

Some of the outstanding conclusions of the study were as follows: (1) "The mean transfer, for the group taught by the most favorable method, was 72.4 per cent of complete transfer" (p. 120). The average for the four methods was 66.7 per cent (p. 142). (2) In the case of addition or subtraction examples having numbers with the same number of digits, for instance, 274 added to 213, no difference in achievement by pupils could be attributed to the method of teaching employed. However, in the case of examples involving numbers having an

unequal number of digits, for instance, 24 added to 322, significant differences were found. With examples of the latter types generalization alone was most effective, generalization and rationalization combined next, rationalization alone next, and mere performance of the process by pupils the least effective. (3) No reliable differences could be attributed to the factor of sex. (4) "In general there was an increase in the amount of transfer with an increase in mental age" (p. 121). (5) A combination of rationalization and generalization seemed to be the most effective method with pupils in the highest third of the group with respect to mental age; however, rationalization alone seemed to reduce the amount of transfer in the earlier stages of the experiment. (6) "The relative amounts of transfer to the different types of examples . . . . could be accounted for as a result of the intrinsic difficulty of the different types and their degree of similarity or dissimilarity to the specific types that were taught" (p. 122).

Space permits only a few comments on the work of the author. That a large percentage of transfer of training, as defined by the author, was found is evident in the results presented. What the actual percentage was depends on the method of calculation. According to Overman's method, if the percentage of correct answers to an example on the first testing were 90 and that on the last were 95, the percentage of transfer would be 50 because a gain of 5 of the remaining possible 10 per cent of correct answers had been made. However, if the percentage of correct answers on the first testing were only 10 and this had been raised to 55 on the last testing, the transfer would still be 50 inasmuch as a gain of only 45 of the remaining possible 90 per cent of correct answers had been achieved. Although the author's method of calculating transfer can be defended, it would seem that a large gain on the basis of small initial ability in a field is surer evidence of transfer than a comparatively small gain on the basis of a large initial ability.

Though Overman found an average transfer of 66.7 per cent, it could with reason be argued that the transfer was even greater. Using the figures presented on page 55, except those for Type 29, which was included by the author for reasons other than transfer, we can calculate that the efficiency of the pupils increased from 39 per cent to 95 per cent on the examples taught during the experiment, whereas the increase was from 19 per cent to 72 per cent on the examples not taught. On the taught examples the gain was 92 per cent of the total possible gain; on the untaught examples the gain was 65 per cent of the total possible gain. Consequently, the transfer could be considered as approximately 71 per cent (65 divided by 92).

The author's work indicates that transfer "occurs in *useful* amounts" (p. 124) and is facilitated by methods of teaching which encourage the forming of generalizations on the part of the pupils. "The tendency of most of the current textbooks in arithmetic is to avoid all generalizations. This is probably the result of our well-founded distrust of teaching by rule, which has led us to the extreme of rejecting rules and generalizations entirely" (p. 126).

HERBERT T. OLANDER

UNIVERSITY OF PITTSBURGH

Safety work through pupil organizations.—The large number of injuries and deaths occurring annually in the United States as results of preventable accidents are the cause of increasing interest in safety education in the schools. A pocket-sized volume by Idabelle Stevenson,[1] executive secretary of the education division of the National Safety Council, is one of the latest additions to the literature in this field. The material in this book is applicable to both elementary and secondary schools, and it emphasizes activities on the part of pupils—especially organized group activities—as the most effective mode of spreading intelligence concerning safety and of reducing the annual roll of accidents.

The work begins with interesting facts and figures as to the number and nature of accidents. Several chapters are devoted to the activities of organizations of various types, such as safety patrols, councils, inspectors, and to suitable activities for assembly programs. Attention is given to hazards in school athletics and to appropriate means of publicity. A considerable number of rules or directions are provided in terse statements for the guidance of hunters, swimmers, bicycle-riders, and others. In the Appendixes are found a safety test, a list of cities with various kinds of organizations, and a selected bibliography.

In general, the book provides a concise and authoritative discussion of the problem and an abundance of practical suggestions for principals and teachers, which will be especially useful to those who are approaching safety education primarily through pupil organizations.

PAUL W. TERRY

UNIVERSITY OF ALABAMA

A new series of primary readers.—Many sets of primary readers the contents of which are based on children's activities have been published during the past few years. Among these may be mentioned a series of readers prepared by Florence Piper Tuttle.[2]

The series consists of five books—a preprimer, a primer, and three readers. Neither material nor theme is new; both have been used in several other series. A boy, a girl, their baby brother, their playmates, and their pets have many experiences. In the first two books the group play games and dramatize home experiences. In the last three books the children attend school and enjoy with their friends the activities which are included in the curriculums of most modern schools.

Like many series of primary readers, the last two books of the set are superior to the first three. Second- and third-grade teachers who are looking for varied

[1] Idabelle Stevenson, *Safety Education.* New York: A. S. Barnes & Co., Inc., 1931. Pp. x+158. $1.00.

[2] Florence Piper Tuttle, Our Book World: *The Family Playhouse* (A Pre-Primer), pp. 48, $0.24; *Playing Days* (A Primer), pp. vi+122, $0.64; *Doing Days* (A First Reader), pp. vi+154, $0.68; *Real and Make-believe* (A Second Reader), pp. vi+186, $0.72; *In the Workshop* (A Third Reader), pp. viii+280, $0.80. New York: Longmans, Green & Co., 1931.

and interesting material for library tables or for group reading will find such material in *Real and Make-believe* and *In the Workshop*. Exceptionally valuable material is contained in the stories "The Indians," "The Study of Milk," "A Trip with Lindbergh," "Making the Post Office," "Helping To Make a Better City," and "A Visit with the Fairies," which appear in the third reader. This book also contains extensive bibliographies for the children.

While there are many good qualities in the early books of this series, teachers of beginning reading will hesitate for the following reasons to use them.

1. The language is inexact. Not all the printed symbols of words are introduced with their literal meanings, as they should be for children who are learning to read. For example, the word "children" should be used to designate the young of the human race only. It is applied rarely and figuratively to other creatures. In the preprimer of this series, however, the word "children" is used for the first time (p. 21), and frequently afterward, to designate a group consisting of a baby, two dolls, a dog, a cat, and a bird. Similarly, the word "mother" is used throughout the preprimer to designate a little girl who plays that she is the mother, and the word "father" is applied to a little boy who is the father in the children's dramatic play. In the primer the word "mother" is used more than seventy times in designating the little girl, and only twice—at the end of the book—is the word used in its true sense to designate a real mother. Similarly, in the primer the word "father" is applied more than twenty times to the little boy, and it is not used once in its true sense.

Printed words must first be presented in situations which will give the child exact associations with the things which the words represent. For example, the word "children" must be presented so that it will always bring to the learner's mind a picture of a group of children and not a group consisting of one child, some dolls, and some animals. Children who have been taught reading with these books as basic readers will, for a long time, associate dolls, dogs, and cats with the printed word "children," a little girl with the printed word "mother," and a little boy with the printed word "father."

2. Several of the experiences selected are trivial, and the stories based on them are uninteresting to intelligent, six-year-old children. Much of the language is not childlike. The following story is representative of the content of the primer.

One morning Ted was busy behind the playhouse.
Mary called, "Father, Father! What are you doing?"
"Sh, sh!" said Father. "We must keep it a surprise."
Ted was making a teeter for the children.
He put a long board over a box.
"Come, children," called Mother.
"Come to see what Father has made for you."
"Bow-wow-wow," said Bowser.
"Meow, meow," said Tabby Cat.
They ran to the teeter as fast as they could go.

Tabby Cat sat on one end.
Bowser sat on the other end.
When Tabby Cat went up, Bowser went down.
Mother was singing,
"Tabby up and Bowser down;
All the way to Bow-Meow Town.
Bowser up and Tabby down;
Here we are at Bow-Meow Town" [pp. 35–38].

3. Artificial situations are used. The youngest children will question at once a situation described in the primer in which the bird takes his bath in a bowl around which sit a dog, a cat, and a child. And where in life do a baby, two dolls, a dog, and a cat dance in a ring as they do in this primer?

In the first reader the children have a health party. They dress themselves as vegetables and then recite poems which are not childlike and which do not function in the development of health habits.

The books are well printed, and the illustrations are attractive. Throughout the series, the material is graded high. The first books are difficult. It is regrettable that this series, which has many excellent qualities, should also have these serious defects.

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